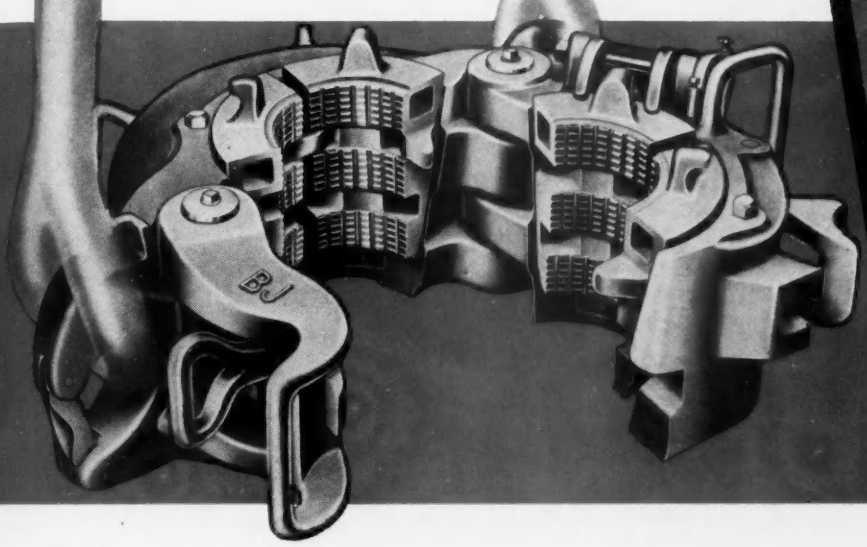
MONTHLY INTERNATIONAL FEATURE ISSUE

The OIL WEEKLY

FOR THE DRILLING, PRODUCING, PIPE LINE INDUSTRY

The safest elevators in the world are also the easiest to work



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SLIPS CAN BE SET at any desired position by operating the slip-setting handle. Or they set automatically upon contacting the upset or collar; thus, it is impossible to lift under the coupling. Slips can be locked in set position with the Slip Lock to prevent accidental release.

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Recommended for wells where heavy loads are encountered and where irregularities in pumping movement are unavoidable. The NICKEL and MOLYBDENUM content in this rod aids materially in their resistance to corrosion fatigue. A. P. I. Specifications. Double Pin Type only.

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Fully Normalized and Precipitation Strengthened

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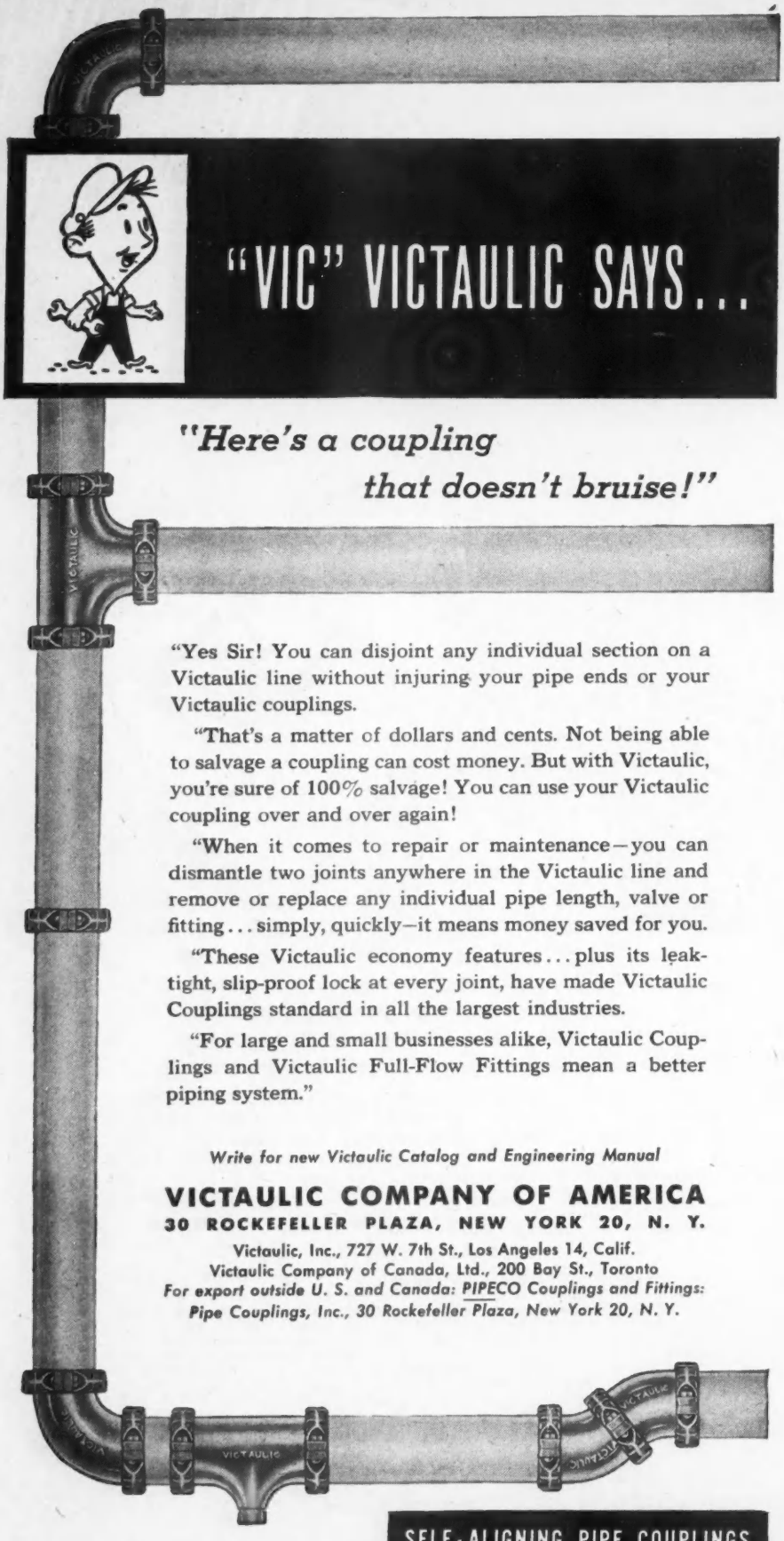
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Looking Ahead

WITH THE EDITOR

THE accumulation of paraffin or other hydrocarbon deposits within flow lines, well head equipment and the producing tubing has long been a headache to production men in areas where these conditions account for much of the routine field work.

Scraping paraffin from inside the tubing in producing wells has become part of the work performed by the roustabout crews. Similar accumulations on the inside of flow lines from well heads to lease tanks result in another problem requiring different techniques. In some cases, flow lines from producing wells may be five to six miles from the well. Cleaning the accumulations from such flow lines presents an unwelcome problem to the lease crews. These jobs are particularly difficult if the deposits have been permitted to form a hard, thick layer.

Several methods are in use throughout these stricken areas where hydrocarbon deposits in flowing equipment must be removed regularly. Steam has been applied to melt the paraffin (in the case of paraffin base crudes), and oil-soluble plugs have been used when forced through the lines under pressure. A relatively recent development in cleaning out hydrocarbon deposits, whether of paraffin base or asphaltic base, is that of using ice-cream salt under pressure. This patented application is described in detail by L. N. Scheuermann, of the Paracut Oil Development Company, Inc., in "Salt Quickly Cleans Flow Lines," which will appear in THE OIL WEEKLY of November 11. The author presents diagrams for the introduction of uniform grain salt into the flow stream. The application of this method to varying field conditions is also discussed. Because of its chemical and physical characteristics, salt has been found adaptable to this type work.

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for the refining-natural gasoline industry

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The **OIL WEEKLY**

ENGINEERING NEWS STATISTICS

R. L. DUDLEY, President, Publisher — A. L. BURNS, General Manager

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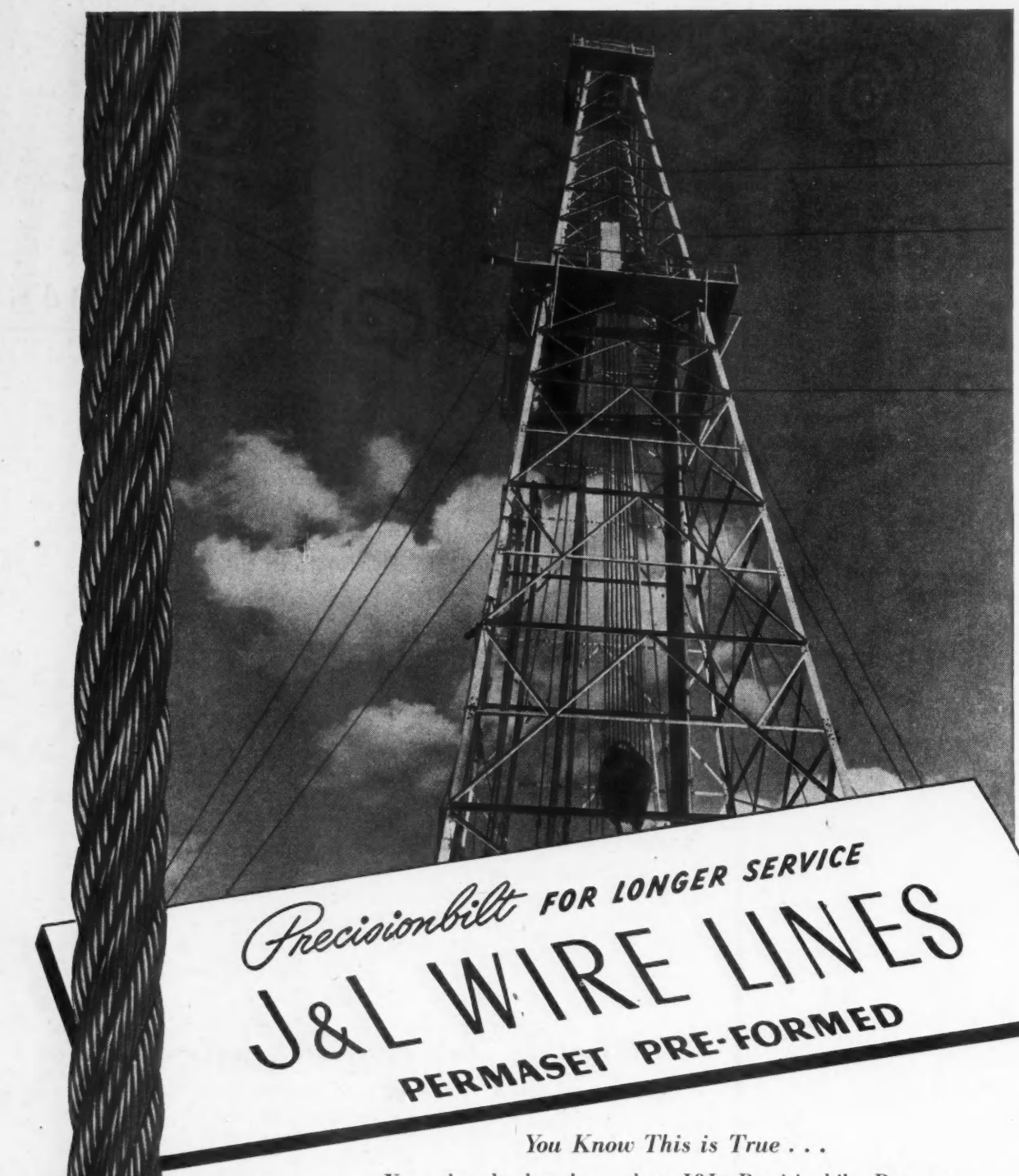

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THE CHANGING Panorama

How Long, Oh Lord, How Long?

An Editorial

UP IN Pittsburgh Rockwell Manufacturing Company apparently has had just about all the work stoppage it can stand. Two weeks ago in an advertisement published in Pittsburgh newspapers the company unburdened itself as follows:

"How long, oh Lord, how long?

"We have borrowed money, begged priorities, built plants, bought inventories, employed G. I.'s and now have the biggest facilities and largest capacity in the world to produce for home and export.

"Gas, water and oil meters, pressure and flow control valves, power tools,

"but . . .

"We cannot produce without power during the power strike. Our employes have been without public transportation. We cannot ship to the metropolitan area because of the New York truck strikes. We cannot export tons of accumulated goods because of the maritime strike. We cannot get tin plate, copper, sheet steel, coke, pig iron or even scrap iron in sufficient quantities to keep up with orders from all over this distressed and starving world because of internal strife.

"ISN'T IT TIME FOR A CHANGE?

"How long must all who want to work remain in idleness because of the quarrels of a few?

"How long will our meat, steel, lumber and other necessities of life be exported to our potential enemies?

"How long, oh Lord, how long?"

We are very sympathetic with the problems Rockwell Manufacturing Company has faced and is facing. So are scores of millions of other people. We are glad that Rockwell Manufacturing Company had the courage to tell its fellow citizens of Pittsburgh just how it feels, and we'll make a wager that a majority of Pittsburgh citizenry feel the same way.

The probability of inventing excuses for perpetuating authoritarian government in America is considerable. There are many who have been sold the idea that "planned economy"—which are the American words for totalitarianism—would be a good thing. The technique of selling the idea is for those who govern to promise everybody happiness, security and large income—at least to promise these things for those who are deemed to be numerically superior at the polls.

To many people, the planned economy with its "robbing Peter to pay Paul" idea seems plausible, and planned economy from the springboard of war-created dictatorship may, therefore, become permanent in America. But each of us had better search his soul and the records of history to find out if the planned economy idea in peacetime can really have any other possible purpose and outcome than to "kid" the people into keeping the planners permanently in office, and whether accepting their promises and pretensions can have any other ultimate fulfillment than had the similar promises of Hitler and Mussolini to their respective peoples.

C. R. Cox, *President*
Carnegie-Illinois Steel Corporation

Shipshape Sample Of Industry Action

THE oil industry's handling of its views relating to regulations under recent amendments to the Federal Leasing Act at the recent conference in Denver furnishes a pattern which might, with profit, be duplicated from time to time in the future.

Here's what was done:

Two days before the conference opened, representatives of six oil men's associations as well as attorneys and others from a score or more of independent and major companies met and studied in minute detail the tentative leasing regulations. Committees were named to draw up the industry's views and recommendations on each principal phase of the proposed rules and terse, clear suggestions on what would be proper and workable regulations were readied for presentation at the conference.

Result:

Sessions scheduled to consume two full days were finished with ease in one and the valuable time of several hundred men was thus conserved.

Senator Joseph C. O'Mahoney praised the cooperative spirit evident and said "such a partnership between government and industry can develop only for the public good."

Under-Secretary Oscar L. Chapman cited the operators for their cooperation and well-planned, unified action.

IPAA General Counsel Russell B. Brown said "I think this was one of the most inspiring, as well as constructive gatherings of oil operators that I have attended in many months."

Everybody left the conference feeling that much good had been accomplished, not only as regards the leasing regulations, which was the particular problem at hand, but also regarding both intra-industry and industry-government relations.

»

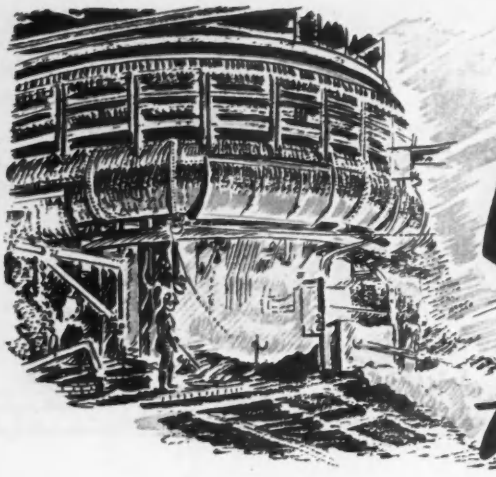
Same Technique But Less Luck

NEWSPAPER reports on the recent election in Berlin have a strangely reminiscent ring. The communists wooed the voters we are told, with extra allowance of coal, with cigarettes, potatoes and what not.

But the commies had less luck than the New Dealers a few years ago, who wooed with the dole, with advanced cotton payments and what not!

Our research—and in the laboratories of other companies—is an integral part of the American competitive enterprise system, with more and more people benefiting through more and better products at lower prices.

B. Brewster Jennings, *President,*
Socony-Vacuum Oil Company, Inc.

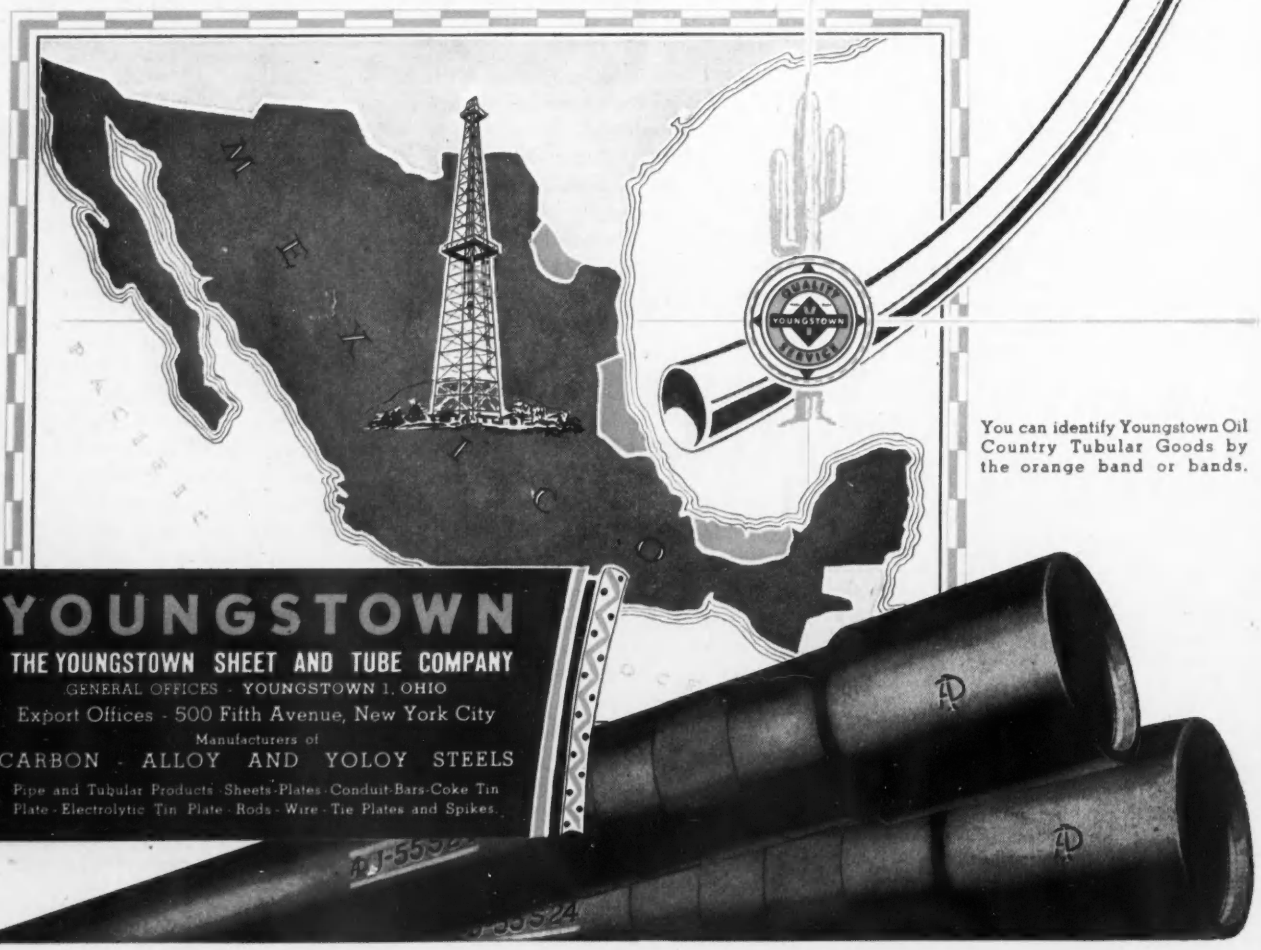


Youngstown to MEXICO

MEXICO'S oil industry faces opportunity--Opportunity once more to contribute her much needed share to the oil future of the Western Hemisphere and the world. Back in the early '20s, not even the fields of Texas or California were producing as much crude as Mexico's approximate 150-million barrel annual average.

Potentially very rich in oil, with much of her most favorable area scarcely explored, Mexico is said to have proven reserves of 800 million barrels--almost as great as those of Oklahoma, exceeded in Latin America only by Venezuela and Colombia. Development of these resources will assure a substantial addition to the heavy demands placed upon the world's petroleum industry.

Youngstown drill pipe, casing, tubing, and line pipe have all had a part in the past development of Mexico's petroleum industry. In the future, too, the oil men of our sister-country south of the border along with the producers in other parts of the world, will recognize in the orange bands the mark of quality and dependability. They can rely on Youngstown Oil Country Tubular Goods for faithful service under all conditions.



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The Week's News

THE United Nations Economic and Social Council has asked member countries to report whether they are interested in President Truman's proposed world conference on natural resources, with a view to scheduling it for next year if sufficient support is indicated.

Pike on Atomic Commission—Sumner T. Pike, wartime chief of the OPA fuel price division, has been named a member of the Atomic Energy Commission, which will direct the peacetime development of atomic energy.

Big Inch Sale Hearing—The House Surplus Property Committee has announced that it would investigate WAA's handling of the disposal of the Big Inch pipe lines. Page 14.

Carthage Wells Shut In—The Texas Railroad Commission has shut in 30 gas wells in the Carthage field "for exceeding allowables." Page 13.

API Public Relations Talks—Panels for discussion of public relations of the oil industry have been announced for the Chicago sessions of API. Page 12.

Oil Emissaries to Europe—The State Department is sending its top oil experts to Europe to discuss with various nations details of the postwar petroleum picture. See below.

Oil Treaty Opposed—IPAA did an about face on the Anglo-American oil pact and by resolution at its annual session asked that the Senate refuse to ratify the treaty. Page 15.

Rubber Exports Resumed—With the latest purchase of more than 200,000 tons of natural rubber for delivery during the next few months, the rubber situation has eased to such an extent that exportation of GR-S synthetic rubber was resumed November 1. GR-I, butyl rubber is still in short supply and will remain under international allocation until the end of the year.

New Leasing Regulations—New regulations for operations on the public lands, discussed at meetings in Denver, September 30, have been issued by the Interior Department under the new Mineral Leasing Act. Page 12.

Strikes to Affect Oil—Labor difficulties in the coal and steel industries pose twin threats of a sudden stoppage of oilfield supplies and increased prices for pipe and other steel products in the next few months.

Bonus in East Texas—A bonus is being paid East Texas producers in return for exclusive rights to run their allowable for three years. Price increase talked. Page 15.

Colombian Oil Workers Strike—Oil operations in Colombia, South America have been halted by a full-dress strike. See below.

Estimate for November—The Bureau of Mines' estimate for November demand will show a drop under the October figure. Page 13.

Full-Dress Strike Halts Colombian Oil Operations

Colombia oil operations were halted October 28 by a general strike involving 12,000 oil workers, following a breakdown in negotiations between the companies and representatives of the oil workers syndicates. Cessation of work comes at a time when the current labor contracts have more than a year to run, and those in touch with the situation believe that it is designed to spread from oil to other Colombian industries.

The strike is believed to have more serious implications than previous labor disputes, since it is tagged as being largely political, rising from the discontent of certain factions over the results of the presidential election which placed Dr. Ospina Perez at the head of the government, and calculated to influence the congressional elections to be held in March, 1947. The defeated party, largely communistic in scope, is said to be at the root of the present difficulty.

Pipe line companies are also involved in the work stoppage, and except for scattered wildcat drilling operations by some companies with no actual production, all oil operations are at a standstill. If the strike continues very long, all hopes of attaining production greater than last year will be gone.

Halting of work in the Tropical Oil Company's 17,000-barrel-a-day refinery at Barrancabermeja cuts off most of the country's refined products.

Barges Offered

The Maritime Commission last week offered 14 DPC steel tank barges for sale at a fixed price of $4000 each.

The barges, 175 by 26 by ten feet eight inches, are of welded steel construction.

State Department Emissaries to Talk Postwar Oil Situation With Europeans

Charles B. Rayner, petroleum adviser to the State Department, and John A. Loftus, chief of its petroleum division, will leave shortly for a quick tour of Europe for conversations with officials of several governments regarding the postwar oil picture.

Loftus, who attended Paris peace conference sessions, will accompany Rayner as far as London, but may not continue with the latter to Paris, Madrid, The Hague, Rome and Cairo.

The officials will seek to bring British officials up to date on the Anglo-American petroleum agreement now pending in the Senate, but since no action has been taken on that pact, do not expect any detailed discussion of future plans for a world-wide arrangement along similar lines.

The British reportedly are puzzled over the delay in ratifying the agreement, and it will be explained that no pressure was put behind it last session because Assistant Secretary of State William L. Clayton wanted nothing to interfere with the British loan and thereafter Chairman Connally of the Foreign Affairs Committee was absent from Washington most of the time.

The London talks are expected also to go into the question whether recent labor troubles in Iran have threatened the security of British oil interests and other phases of the Middle East situation including the marketing plans of Shell and Iranian in view of the tremendous increase already attained and planned for the future in Middle East production. The problem here is not one of immediate importance, because there is a demand for the oil, but one of future possibilities, when supply overtakes demand and surplus stocks begin to accumulate.

The situation in Spain, where the state monopoly expires next year also is to be explored. Arrangements which will benefit American oil companies in that market are possible.

Although relations with the Franco government have been cool for some time, department officials see a hint that the time may be ripe for negotiations in recent maneuvers of the Spanish refinery at Teneriffe, officials of which have been reported talking some sort of partnership with American interests.

Talks in Paris will range from the present view of the French government on the proposed nationalization of the oil industry to its long-range program of expansion of resources.

The immediate postwar fervor for complete nationalization of oil has died down and been replaced by suggestions for a partial nationalization and cooperation with foreign companies. There are indications that this change of thinking may be due in part to a desire to have American companies assist in developing new reserves.

France now has an interest in Iraq from which it is getting a million tons (7,481,000 barrels) or more a year, from which it will eventually get possibly 2 million tons, and recently obtained an

interest in Venezuela which will give it additional oil, but it is far from achieving the 8 to 10 million tons a year which it requires, and is attempting to narrow the gap by developing resources in its own colonies. Currently France is deeply interest in Gabian oil prospects.

Panels Selected for API Public Relations Forum

Results of the work of the Public Relations committee and the Public Relations Advisory subcommittee of the American Petroleum Institute will be revealed for the first time at the general session of the API scheduled in Chicago Tuesday evening November 12. A nation-wide survey has been made and an industry-wide public relations program worked on. These will be discussed.

Speakers include Dr. Claude Robinson, president of Opinion Research Corporation which conducted the API survey to find out what the public thinks of the petroleum industry; John J. Pelley, president of American Association of Railroads which over the last six years has engaged in an intensive public relations program; and Robert T. Haslam, vice president, Standard Oil Company (New Jersey), and chairman of the API Public Relations Advisory subcommittee whose topic will be "Progressive Public Relations for the Progressive Petroleum Industry."

Scheduled Wednesday morning is the Third Public Relations Forum under the title, "Petroleum's Road to Public Acceptance and Understanding," with Franklyn Waltman, Sun Oil Company, presiding. This will be a "how to do it" discussion of the problems presented Tuesday night.

Speakers include Fred Eldean, head of the organization which serves as public relations counsellor in connection with the program which will be projected; Don E. Gilman of the Western Oil and Gas Association who will discuss the part which trade organizations will take in the project and Ralph C. Champlin, Ethyl Corporation, who will discuss the individual oil company's role in the program.

A double-header panel discussion will follow.

Representing the petroleum press will be Ray L. Dudley, publisher of THE OIL WEEKLY and *Petroleum Refiner;* Keith J. Fanshier, petroleum editor of the *Chicago Journal of Commerce;* P. C. Lauinger, publisher of the *Oil and Gas Journal;* Milburn Petty, editor of *Petty's Oil Letter* and Warren C. Platt, publisher and editor of *National Petroleum News.*

A second panel of public relations men of the oil industry includes John L. Dupree, of Ivy Lee, and T. J. Ross, counsellors to Socony-Vacuum Oil Company; Clarel B. Mapes, general secretary, Mid-Continent Oil & Gas Association; Conger Reynolds, director of public relations, Standard Oil Company (Indiana); Edgar Waite, director of public relations, Standard Oil Company of California; and John Wieland, advertising manager, Standard Oil Company (Ohio).

New Leasing Regulations on Public Lands Become Effective Immediately

The Interior Department last week made public new regulations under the revised Mineral Leasing Act passed at the last session of Congress, based on the views submitted by oil industry representatives at the recent hearing in Denver. The new rules go into effect immediately.

The new law, which increases the amount of public lands allowed to be held by one lessee in any one state to 15,360 acres, also provides for non-renewable two-year options on not exceeding 100,000 acres in any one state for geological or geophysical exploration. Each option holder must file a sworn statement of options held with the director of the Bureau of Land Management within 90 days after December 31 and June 30 of each year, commencing with December 31, 1946, this to show: Name of the optioner and serial number of lease or application for lease subject to option; date and expiration date of each option, number of acres covered by each, and aggregate number of options held in each state and total acreage. If options taken after June 1, 1946, are found to be in excess of the 100,000-acre limitation, the holder will be given 30 days in which to file proof of surrender of the excess acreage.

Favorable Provisions Extended

A revised schedule of rents and royalties, designed to lower initial costs and bring higher ultimate returns to operators, aims at providing incentive for more exploration and drilling by extending the most favorable provisions to leases outside the known geologic structure of a producing field. In such cases, the rental charge will be 50 cents per acre the first year, nothing in the second and third years, and 25 cents for the fourth and fifth years. Generally, if the land later is declared to be within a known geologic structure or a discovery is made, the rental will increase to $1 per acre, the higher charge to be effective, in the former instance, 30 days after declaration is made of the known geologic structure character of the land.

The rental charge for land in producing fields to be leased through competitive bidding will be fixed in the offering notice.

A flat 12½ percent royalty is provided on all production under leases involving lands not within the known productive limits of a producing deposit on August 8, 1946, except lands subsequently determined to be productive if leased by competitive bidding.

The Secretary may establish reasonable values for the purpose of computing royalty in value on any or all oil, gas, natural gasoline and other liquid products obtained from gas, where the posted field price is not accepted, but only after notice is given and public hearing has been held. Over-riding royalties may not exceed 5 percent.

Any lease issued for an initial five-year term for land outside a known geologic structure may be extended for an additional five years if application is filed 90 days prior to expiration of the lease. In cases where a five-year lease originally issued for lands not within a known geologic structure cannot be extended for five years because the land later was declared to be within a known geologic structure, the lease may be continued in effect for a period of two years after expiration of the primary term, if drilling operations are being "diligently prosecuted."

Storage Regulations

There also are liberalized provisions for the extension of the terms of leases in unit plans for cooperative operations, the assignment or transfer of leases and lease interests and other trade practices.

The Secretary, upon application, may authorize the subsurface storage of oil or gas whether or not produced from federally owned lands not leased or subject to lease under the act, this designed to eliminate waste of gas for which storage is lacking. Storage fee or rental on the stored oil or gas would be determined or in lieu thereof, a royalty other than that prescribed in the lease when such stored oil or gas is produced in conjunction with oil or gas not previously produced. Any lease used for the storage of oil or gas shall be extended for the period of such storage and so long thereafter as oil or gas not previously produced is produced in paying quantities.

General provisions of the new regulations delineate the lands covered by the Mineral Leasing Act, which does not apply to national parks or monuments, lands acquired under the Appalachian Forest Reserve Act, Indian lands, incorporated cities, towns or villages; lands in military or naval petroleum or oil shale reserves, or other acquired lands of the United States.

Prospecting permits and leases may be issued only to U. S. citizens, associations of such citizens, corporations organized under U. S. laws or of any state or territory, or to municipalities. Aliens may not acquire or hold any direct or indirect interests in permits or leases but may own stock in corporations holding permits or leases if the laws of their country do not deny similar rights or privileges to U. S. citizens. Corporate applicants will be required to make a full disclosure of the residence and citizenship of stockholders.

Louisiana Upped

The Louisiana Conservation Commission last week announced a record daily oil allowable for November of 440,315 barrels, an increase of 4425 barrels daily over October allowables, and 41,582 barrels daily higher than the allowables in November, 1945.

Texas Takes Bulk of Drop In Bureau's New Estimate

A daily production of 4,730,000 barrels of domestic crude during November will be forecast this week by the Bureau of Mines, a drop of 41,000 barrels daily from the October estimate.

Most of the reduction will come in the demand for Texas oil, which the Bureau foresees as 2,090,000 barrels daily against an October estimate of 2,120,000 barrels. Oklahoma and Kansas are dropped 1000 barrels each in the forecast.

Bureau officials commented that runs to stills have declined sharply in the past few weeks and now are running down toward the 4,750,000 barrel mark which they estimate as the logical level for the fourth quarter. The slowing down of operations is the result of exceptionally heavy stock build-ups earlier in the year which, it is figured, will leave refined stocks 40 million barrels higher at the end of 1946 than they were at its beginning.

Present inventories are somewhat unbalanced as between products it was said, but this situation is expected to straighten out during the winter.

It is figured that, with heavy stocks at the beginning of 1947 and the anticipated increase in natural gasoline production, a 2 percent increase in crude output would be all that is necessary to meet an increase of 5 percent in demand. The Bureau, however, plans to discuss the 1947 outlook more in detail in its December forecast, which will be issued earlier than usual.

Secondary Recovery Group Hears Technical Papers

The Pennsylvania grade crude oil region faces an optimistic future, according to D. T. Ring of Columbus, Ohio, Pennsylvania Grade Crude Oil Association president, who addressed more than 100 oil men from a four-state area at a dinner climaxing the opening session of the tenth annual Secondary Recovery Conference at Pennsylvania State College.

He based the prediction on the belief that research and technology will exploit known reserves of Pennsylvania grade crude to the fullest and that broad wildcat drilling campaigns to satisfy the heavy demand for natural gas in the eastern area will uncover additional oil fields.

He called attention to the current excess of Penn grade production over runs to stills, and asserted, "the future life of the Pennsylvania grade oil industry is insured with the weapons of science, technology and education."

Other speakers at the dinner at which G. J. Hanks, president of South Penn Oil Company, Bradford, presided, included E. G. Dahlgren of Oklahoma City, Oil Compact Executive, Dean Edward Steidle of Penn State School of Mineral Industries, and Dr. A. W. Gauger.

J. W. Amyx told the technical session a method of measuring the capillary pressure-saturation relations in small plug cores has been developed in order to determine influence of capillarity on secondary recovery processes. A simple apparatus designed for determination of capillary pressure-saturation relationship is applicable, together with the technique, he said, to air into oil, air into water, water into oil, and oil into water.

K. W. Smith described laboratory work involved in applying to field the use of semi-permeable diaphragms which allow the passage of one fluid and exclude others. Basic idea behind studies is to exclude the drive fluid from the producing well while allowing the oil to enter. This requires presence of an oil wet diaphragm at well bore.

P. L. Terwillinger described work done in using water soluble, surface active agents for increasing recovery of oil in water flooding. He said where more oil is recovered using such reagents, the process is uneconomic because of large amount of chemical absorbed into sand. To minimize this difficulty study was made, he said, on effect of oil soluble wetting agents on recovery process. He outlined similar studies on an acid and basic gas injected prior to water flooding.

S. T. Yuster discussed laboratory permeability measurements.

Crude Oil Production in U. S.

(Estimates compiled by THE OIL WEEKLY. All figures indicate daily averages in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED Nov. 2	Oct. 26
Alabama	1,000	1,000
Arkansas	73,350	73,500
California	870,200	871,800
Colorado	38,300	38,100
Florida	*	*
Illinois	210,250	202,750
Indiana	18,700	18,700
Kansas	279,100	280,350
Kentucky	30,400	30,600
Louisiana	394,350	394,800
North Louisiana	88,750	89,200
South Louisiana	305,600	305,600
Michigan	46,100	46,900
Mississippi	77,750	76,350
Missouri	100	100
Montana	24,250	24,300
Nebraska	750	750
New Mexico	99,600	99,600
New York	14,050	14,100
Ohio	8,100	8,100
Oklahoma	362,450	355,850
Pennsylvania	36,950	37,200
Tennessee	35	35
Texas	2,046,550	2,046,550
Tex. R. R. Comm. Districts:		
Dist. 1—S. Central	19,450	19,450
Dist. 2—Lower Gulf Coast	144,800	144,800
Dist. 3—Upper Gulf Coast	449,300	449,300
Dist. 4—South West	214,300	214,300
Dist. 5—East Central	40,000	40,000
Dist. 6—East Texas Field	316,000	316,000
Dist. 6—Rest of North East	102,450	102,450
Dist. 7-B—West Central	33,500	33,500
Dist. 7-C—West	27,450	27,450
Dist. 8—West	484,700	484,700
Dist. 9—North Central	129,700	129,700
Dist. 10—Panhandle	84,900	84,900
West Virginia	8,200	8,500
Wyoming	109,100	109,500
Total United States	4,749,635	4,739,435

* Wells shut-in.

Total stocks, foreign and domestic, October 26, as reported by the Bureau of Mines were 221,184,000.

Cities Service Purchases Production in West Texas

Cities Service Oil Company has acquired Tevis F. Morrow Dallas, and associates' producing properties in the Slaughter field, West Texas, for $4,830,000 cash, or $52,500 per well. This deal involves 3500 acres of developed leases with 92 wells in the 4900-foot San Andres lime prorated to a base allowable of 3000 barrels daily. The Mallet 2674-acre lease, with 75 wells, consists of a five-eighths working interest as the fee owner retained one-quarter over-ride in addition to the customary one-eighth royalty interest. Purchaser obtained 75 percent working interest in the remaining 17 wells.

Cities Service is obtaining a substantial volume of oil daily from the Permian Basin through its part ownership of the Texas-New Mexico Pipe Line Company for use at its Lake Charles, La., refinery. The company will book space in The Texas Pipe Line Company's projected 20-inch carrier from the basin to Cushing, Okla., to augment crude requirements of its midwestern plants, but the Slaughter field purchase is primarily for the latter.

Carthage Gas Wells Shut in On Over-Production Charge

Approximately 30 of the more than 250 gas wells in the Carthage field, Panola County, Texas, have been shut in by the Texas Railroad Commission for exceeding allowables. The wells belong to The Chicago Corporation and others supplying gas to Tennessee Gas and Transmission Company.

The Chicago Corporation and R. E. Smith were ordered recently to produce within allowable limits after they had threatened to over-produce under Section 18 of Article 6008 of the Revised Civil Statutes of Texas.

The operators contended that the over-production was necessary in order to fulfill contract obligations, and that unconnected wells cannot be produced because of a shortage of pipe.

Forty thousand barrels of distillate, made from gas allegedly produced in excess of allowables, also is tied up in the dispute. The commission has refused to grant a tender to move the liquid from the field.

Tankers Out of Storage

The Maritime Commission has ordered 35 large tankers out of the reserve fleet and into active service to meet a worldwide emergency.

The vessels, to be operated by Tankers as agents for the commission, will be used to supply Army and Navy needs in Europe, keep continental refineries in operation, and to meet additional domestic needs in this country, it was explained.

The commission said all major companies had requested help in making the tankers available. They will be used only during the emergency, until private operators purchase and take delivery of additional tankers for their own use.

House Surplus Property Committee To Probe WAA's Big Inch Handling

A congressional committee will launch an investigation of WAA's handling of the Big Inch pipe lines, but there is no indication that the probe will lead to definite action before Congress convenes in January.

Representative Roger C. Slaughter of Missouri has called his House Surplus Property Committee to meet November 19 to open hearings, which he expects will run for a week or more.

Slaughter hopes to bring before his committee, several of the 16 bidders for the property, officials of government agencies with interests in the lines, including the Oil and Gas Division, War and Navy departments and Federal Power Commission, and individuals such as former RFC head Jesse Jones, former Secretary of the Interior Harold Ickes, and coal union chieftain John L. Lewis.

Even though the report of the utilities division reportedly has not gone to the new real property disposal board, rumors about disposal of the Big Inch lines continue.

WAA Busy with Denials

It had been rumored that the real property disposal board, despite no report from the utilities division, already had held two Big Inch meetings, but this was denied by WAA officials, as were conflicting reports that (1) the board was trying to speed up action and that (2) it was slowing matters down so that Congress would be in session when final decision was made.

The major stumbling block to a quick decision appeared to be the oil-gas controversy. A majority of the inter-agency special advisory committee, which met twice before disbanding, apparently favored conversion to gas. This included the OGD and Army-Navy groups. Former Interior Secretary Harold L. Ickes also favors conversion, his stand being based on a desire to conserve gas now being wasted in West Texas and an equally strong desire to see John L. Lewis slapped down.

At special advisory council meetings, WAA officials are reported to have emphasized the bid of Big Inch Oil, Inc., for operation of the lines as petroleum common carriers. This was the best of the bids contemplating retention of the lines for oil, which was held out as the major objective of the disposal policy reported to Congress last session by the Surplus Property Administration.

However, it is believed, a better return to the government would accrue from one of the proposals submitted by gas interests, but the SPA had recommended that conversion be permitted only in the event no satisfactory way could be found of maintaining the systems for oil.

FPC May Dispose of Ohio Storage Petition by Order

The Federal Power Commission has ordered that if protests are filed against the application of Ohio Fuel Gas Company to use three pools in Lorain and Medina counties, Ohio, for a gas storage pool to be known as the Wellington storage project, a hearing is to be held on the matter November 12. If no issue is raised by that date, the commission may dispose of the application by order, without hearing.

In addition to the storage pool, Ohio will lay 26 miles of well and gathering lines to replace approximately 18.3 miles of existing line, build two compressor stations and lay 88 miles of 16-inch pipe line connecting stations.

Pipe Liners Club Plan Annual Meet

First annual banquet of the Pipe Liners Club, organized at the last API meeting, will be held Monday evening, November 11, in the Blackstone Hotel, Chicago. A cocktail party starting at 6:30 p.m. will be held in the French room and the dinner to start at 7:30 p.m., will be held in the Blackstone's Crystal Ballroom. Club President Bert E. Hull, The Texas Pipe Line Company, Houston, will preside and officers for the coming year will be elected.

Previously scheduled to be held in the South Ballroom of the Stevens Hotel, the meeting place was changed to the Blackstone because the room assigned by the Stevens was too small to hold the expected attendance. On October 30 more than 300 members had joined the club, and others were expected to join before November 11.

Arrangements for the banquet, which will include a floor show, are being made by F. O. Pryor, Standard Oil Company (Indiana) and D. D. Irwin, Pure Transportation System, both of Chicago.

First discussed in 1943, organization of the club was perfected last year during the Chicago API meeting. Oliver C. Klinger, president of Oildom Publishing Company, Bayonne, N. J., is secretary-treasurer.

Members of the Board of Governors are W. R. Finney, Standard Oil Company (New Jersey), 50 West 50th St., New York; H. Clark Kountz, Sinclair Refining Company, 630 Fifth Avenue, New York; N. C. McGowen, United Gas Pipe Lines, Shreveport, La., and Burt R. Bay, Northern Natural Gas Company, Omaha, Neb.

Membership consists of those directly or indirectly concerned with the management and operation of oil and natural gas pipe lines. The Board of Governors will consider raising the membership dues from $10 to $15, it has been announced by club officers.

Humble Plans Line for Sweet Ordovician Crude

Humble Pipe Line Company has authorized the construction of 29 miles of 6-inch and 12 miles of 4-inch trunk line in West Texas to handle Sweet Ordovician crude produced in Andrews, Ector and Winkler counties to the Wink Station and the tank farm on its multi-unit system. This project will consist of 6-inch pipe from the Martin field, Andrews County, thence south to the Andector field, Ector County, then southwest to its Colby station, situated on the south end of the Kermit field. A lateral will be built from the latter unit at a point south of the Keystone field, involving 4 miles of 4-inch to connect with Ellenburger producers in the Keystone field. An 8-mile 4-inch unit will extend southwest from Colby Station and parallel to an existing 6-inch in making deliveries to Wink terminal.

This sweet crude unit is slated to be completed by the end of the year. In the meantime the company is laying 1½ miles of temporary 4-inch line from Humble Oil & Refining Company's discovery in the Andector field, which has four active tests, to connect with Gulf Refining Company's North Goldsmith field outlet.

The entry of Humble into the Keystone-Ellenburger field, which is served exclusively by Gulf, will afford the company maximum of eight wells of controlled production, but it is reported that negotiations have been completed for additional connections.

Three other pipe lines are scheduled to enter this sweet crude area when pipe is available.

Kansas Hearing Postponed

The FPC has postponed until November 25 a hearing scheduled for November 12 in Kansas City on the applications of the Mid-Continent Gas Transmission Company, Cities Service Gas Company and Northern Natural Gas Company for construction by Mid-Continent of an 836-mile pipe line from Liberal, Kas., to St. Paul; a 405-mile line by Cities Service from the Hugoton gas field and installation of 13,840 hp. additional compressor capacity; and 150 miles of loop line and 39,200 hp. compressor capacity by Northern.

Panhandle Eastern Pipe Line Company has been authorized to install eight additional compressor units along its pipe line system, at a cost of $2,865,000.

Reynosa Would Intervene

Reynosa Pipe Line Company has filed application to intervene in the Fifth Circuit Court at New Orleans in the State of Texas' petition which asks that the FPC permit granted Reynosa to export gas to Monterrey, Mexico, be set aside.

While contesting the company's application for a certificate of convenience and necessity, Texas took the export permit into the Circuit Court in an action against the FPC but did not name Reynosa. The petition to intervene has not been acted on.

Trunk Line Tariffs Are Reduced by Interstate

Interstate Oil Pipe Line Company has reduced its trunk line tariffs applying to crude movement from south Mississippi and east Louisiana fields to its Maryland terminal near Baton Rouge. Correspondingly low rates apply to new fields to be connected including the Delhi field, La., which will have a mainline rate of 10 cents per barrel, with 4 cents per barrel field gathering charge. A 9-cent rate applies on the trunk line from Holley Ridge and Lake Charles, La., and Gwinville, Miss., with 3½ cents gathering in the former two fields and 4 cents gathering in the latter. The rate from Brookhaven and Fayette, Miss., is 8 cents and 4 cents, respectively, while a 7-cent tariff applies from Cranfield and Mallalieu, Miss., with 4-cent gathering fee.

The company has stepped up its trunk line shipments from the above areas to Baton Rouge to a daily average of 22,100 barrels, exclusive of the Delhi field, which is being connected.

Ask Keystone-Ellenburger Field Allowable Reduction

Independent producers in the Keystone-Ellenburger field, largest source of sweet crude in West Texas, have petitioned the Texas Railroad Commission to reduce the allowable from 44,000 barrels to 38,000 barrels daily due to heavy withdrawals accelerating the reservoir pressure decline and appearance of water in a few wells. The field's 120 Ellenburger wells have a base allowable of 483 barrels daily each, but are subject to the state-wide production holiday order. Only five of these wells fail to produce their quota due to gas-penalty rules, and two of these are being reworked. New wells are being added weekly.

Bonus Being Offered For East Texas Crude

Offers of 15 cents per barrel premium above the flat posting of $1.60 per barrel are being made to independent producers in the East Texas field by substantial purchasers in return for exclusive rights to run the allowable production for three years. This bonus is attractive to the small operators that do not contemplate selling out, and threatens to result in a large turnover of well connections.

All purchasers are striving to retain every lease served by their lines and many are unofficially predicting that an advance in the price posting will materialize before the end of the year to compensate for inflated operating costs.

Competition for this oil has been growing rapidly for several months, and it has become common practice to allow five cents per barrel gathering fee for lease owners that install their own field lines. This form of bonus has made deep inroads in the purchased oil of buyers that have not matched the offer.

IPAA Annual Meeting

Hot debate ends as group reverses itself on oil pact; subsidy stand is compromised

By WELDON B. HILL, Staff Writer

Completely reversing action taken one year ago, members of the Independent Petroleum Association of America, in annual meeting last week at Fort Worth, adopted a resolution opposing the provisions of the Anglo-American Oil Treaty and asked that the U. S. Senate not ratify it.

Recent interpretations placed upon the provisions of the document by representatives of both signatory nations were cited in the resolution as among the reasons for the about-face action.

The resolution introduced by Glenn H. McCarthy of Houston, resulted in a torrid verbal bout. The McCarthy resolution was introduced after George A. Hill, Jr., president, Houston Oil Company of Texas, proposed that the group ask the Senate to withhold approval and ratification of the treaty unless and until appropriate reservations could be incorporated therein.

Efforts to table both resolutions and poll the entire membership by mail were voted down and the McCarthy resolution carried 58 to 36.

Probable defeat of the Anglo-American Oil Treaty in the Senate was predicted privately by B. A. Hardey, IPAA president, even before the debate began. Hardey told newsmen that regardless of the action taken by IPAA, he believed the agreement was dead because of the recent utterances by the State Department. He thinks the treaty will never get out of the Senate committee.

Subsidy Overshadowed

Following the final vote, accord was reached on the floor with both factions expressing confidence that the debate had made the association stronger.

During the meeting the executive committee of the Texas Independent Producers and Royalty Owners Association adopted a resolution urging the dissolution of the National Petroleum Council and calling upon IPAA to pass a similar resolution but this proposal failed to reach the floor.

The Anglo-American row completely overshadowed the expected fight on the floor over the stripper well "subsidy." This problem was handled in committee and the report of the special committee on stripper well problems, presented by J. Paul Jones of Bradford, Pa., chairman, was unanimously adopted.

The report, which included a resolution, calls for IPAA to "foster and promote the attainment and maintenance of an adequate sustaining price for crude petroleum so as to stimulate exploration, maintain stripper well production and secondary recovery projects, assure against the premature abandonment of known reserves, offer an incentive to the development of new methods of recovery through research."

The resolution also directed the IPAA president to appoint a standing committee to work with a similar committee from the National Stripper Well Association in meeting with government agencies to "ascertain if for the national interest the government should provide incentive payments for conservation practices in order to permit the recovery of additional petroleum reserves for the benefit of the nation."

To "refute the defeatist and alarmist attitude" on the future of petroleum supply, the association adopted a declaration which defined the elements of a national oil policy that will provide for adequate rate of exploration and development of petroleum reserves.

The declaration emphasizes that this country is not facing a shortage of petroleum and continuance of the free, competitive system, adequate prices, and restriction of imports are called for.

Limiting the jurisdiction of FPC through congressional amendment of the Natural Gas Act was favored in another resolution.

Record Imports Cited

The resolutions committee, which refused to recommend either the McCarthy or Hill declaration on the Anglo-American Oil Treaty, presented only three proposals and each was unanimously adopted. The resolutions reiterated IPAA's stand against government participation in international cartels relating to oil or gas; opposed enactment or promulgation of retroactive or ex post facto law, rules, or regulations especially with reference to taxation; opposed retention by the government of mineral rights under any land sold and called upon Congress to require agencies to quitclaim any mineral rights heretofore retained.

The supply and demand committee, headed by Charles Roeser, reported that imports during the third quarter of 1946 averaged almost 400,000 barrels daily—a record high. The committee called for a sharp curtailment of production during the last quarter of 1946 and the first quarter of 1947. It said crude required for the fourth quarter of 1946 was 4,600,000 barrels daily, a decline of 250,000 barrels per day from the third quarter rate, and for the first three months of 1947 the estimated consumptive demand was only 4,280,000 barrels per day, a drop of 570,000 barrels from the daily average during the third period of 1946.

Although admitting that domestic oil production "is our first line of defense" and is entitled to primary consideration, Charles Rayner, petroleum adviser to the Department of State, nevertheless, attempted to explain the State Department's recent stand that the nation will be forced in 20 years to import some three million barrels of oil daily.

"A projection of the gradual yearly increase in consmption demand over the past 15 or 20 years, if continued for the next 20 years or until 1965, would indicate a domestic consumption demand of between 6½ million and 7 million barrels per day," Rayner said. "It would mean, that to maintain the present quantity of reserves, an average of new dis-

coveries amounting to 2 billion barrels per year or 40 billion barrels for the period would be required.

"Yet, in spite of a substantial increase in the past 8 to 10 years in the number of exploratory holes drilled (from 2630 in 1938 to 5280 in 1945), there has been a steady decline in the new reserves discovered, which if projected to 1965 would approximate a maximum efficient rate of production of something in the neighborhood of 3½ to 4 million barrels of oil per day."

Rayner declared that any projection for a 20-year period and any estimate of the supply-demand picture at the end of that period must be in its very nature highly speculative.

"Petroleum, in the recent war years, has increased so tremendously in importance as a prime commodity essential to our national safety and our economic security, that your government must give constant and continuing heed to the prospects indicated by present trends," he declared.

"The government must, therefore, in the light of present facts, contemplate the probability that this country will become a net importer of oil on an increasingly large scale. It was for the purpose of bringing that probability before its hearers that this phase was discussed in the August 17 broadcast."

Army-Navy Views

Discussing the pending Anglo-American Oil Agreement, Rayner assured the oil men that whatever course of action is eventually undertaken "this government has never contemplated giving more than advisory functions to any international body in the petroleum field created either under the Anglo-American Oil Agreement, or under the United Nations."

Colonel G. H. Vogel, executive officer, Army-Navy Petroleum Board, said that "we in the military are only concerned with the conservation of natural resources and the development of synthetics from a standpoint of assurance that our future military requirements will be met," that domestic oil problems are primarily matters of concern to the Interior Department.

"The international political aspects of foreign oil are entirely matters of import to our Department of State," he said, "but here again we in the military are concerned from a standpoint of assurance that an adequate amount of foreign oil, if necessary, will be available to us."

At present 362,800 barrels per day of products are processed for military purposes, but a war emergency can raise this figure well above the 1,321,000 barrels per day reached at the peak of World War II, Vogel pointed out.

Nixon Cites Reserves

The government's contention that the United States faces a pending oil shortage and will have to depend upon foreign imports was strongly attacked by Maston Nixon of Corpus Christi, vice president of Southern Minerals Corporation.

"After fueling the greatest war of all time," Nixon said, "this nation has in excess of 20 billion barrels of crude oil reserves and 148 trillion cubic feet of gas reserves."

Pointing out that Rayner did not include natural gas as possible source of petroleum, Nixon said "the petroleum industry has the know-how to convert natural gas to motor fuel. The oil and gas industry can supply the burner tip requirements and by using its new conversion process supply tremendous quantities of motor fuel and other useful products made from natural gas.

"This means we have the equivalent of approximately 40 billion barrels of crude reserves," Nixon declared.

The Army and Navy was called upon to tell the petroleum industry "in specific terms the type of products and the quantity of each it would need in a national emergency, then the industry in cooperation with the military would set out at once to prepare to meet the need," Nixon said, adding emphatically, "we have never failed."

"This can be done if all agencies of our government will adopt a uniform policy to help build a strong domestic petroleum industry," he said.

Depletion Allowance Defense

Continuing the attack on the theory that the United States was running out of oil, J. V. Howell, Tulsa, Oklahoma, consulting geologist, pointed to vast areas of this country, on which information is scarce, that are potentially productive. These areas include Oregon, Washington, Idaho, Colorado, New Mexico, and Arizona.

Howell also affirmed that depth was a "third dimension" in exploration.

Without the sound and practical method of computing allowances for depletion of oil reserves which Congress developed in the income tax laws, the oil industry could not have found the oil in the United States to supply the needs of World War II, Lovell Parker, Washington tax consultant, told the delegates.

President Hardey, in his annual address, said the most important responsibility the oil industry has during the coming year is "to combat and refute with factual information, the false propaganda that our nation is facing a shortage of petroleum."

Russell B. Brown, IPAA general counsel, warned that the current problem which confronts producers of oil is that of the increasing volume of import oil. He said that IPAA has asked for a conference of interested governmental agencies and the industry but that the proposal had not been accepted.

The value of natural gas to the nation as a whole and as a fuel and chemical raw material during the war period was reviewed by Frank H. Dotterweich of Kingsville, head of the engineering department of the Texas College of Arts and Industries, who outlined modern trends in research and development in natural gas operations.

Edwin Vennard of Chicago, vice president, Middle West Service Company called on management to "operate business enterprise with full regard for the public's interest," and also suggested "a liberal policy in dealing with employes as well as a comprehensive program for informing the public respecting the facts about business."

IPAA Officers

B. A. Hardey of Shreveport, was reelected president of the Independent Petroleum Association of America at the 17th annual meeting last week. Other officers, all reelected, include H. B. Fell, executive vice president; Russell B. Brown, general counsel; C. E. Buchner, executive manager, and N. T. Gilbert, treasurer.

B. A. Hardey

New vice presidents of the association include: A. J. Walker, Evansville, for Indiana; W. C. Woolf, Shreveport, for North Louisiana; William Helis, Jr., New Orleans, for South Louisiana; I. W. Hartman, Mount Pleasant, for Michigan.

Waldo Stephens, Oklahoma City, for western Oklahoma; Lynn G. Smith, Bradford, for Pennsylvania; Dilworth Hager for Northeast Texas; Harold G. Neely, Fort Worth, for Northwest Texas; Noble C. Ginther, Houston, for Southeast Texas, and Maston Nixon, Corpus Christi, for Southwest Texas. All other vice presidents were reelected.

Members of the executive committee elected at the meeting were W. C. Whaley, Los Angeles; Merle Becker, St. Louis; Emery Carper, Artesia, N. M.; James Donoghue, Colorado Springs; Jake L. Hamon, Dallas; A. E. Herrmann, Amarillo; James P. Evans, Sr., Shreveport; C. P. McGaha, Wichita Falls; J. C. Miller, Owensboro, Ky.; J. Ed Warren, Midland, Texas; R. F. Morgan, Longview; A. S. Ritchie, Wichita, Kas.; H. J. Porter, Houston; Fred W. Shield, San Antonio; W. I. Lewis, Mt. Vernon, Ill.; Charles W. Teater, Saginaw, Mich.; J. D. Trimble, El Dorado, Ark., and W. M. Vaughey, Jackson, Miss.

Zook Takes Issue With Resolution on Oil Pact

Ralph T. Zook, of Bradford, Pa., past president of IPAA and one of the members of the National Oil Policy Committee who assisted in the drafting of the Anglo-American oil pact and one of the advisers in London when the document was agreed upon, said Friday he is "in complete disagreement with the resolution" adopted at Fort Worth. Zook, because of illness, did not attend the IPAA convention.

"Nothing I have ever said can be construed as justification for the resolution's language that 'the members of IPAA who aided in the negotiations are not satisfied with the construction placed upon the provisions of such treaty by representatives of the State Department, etc.,'" Zook declared.

"I have never seen any statement by Charles Rayner or John Loftus or any member of our government or of the English government that the agreement has any powers or designs that are different from my understanding. I believe it is most important that an oil treaty be concluded between Britain and the U. S. and I see no way the present one can bring about federal control of the oil industry by the federal government or by an international commission. A simple statement to that effect by the Senate will insure adequate protection."

Marshall Succeeds McClure As Stripper Well President

J. Howard Marshall of Ashland, Ky., president of Ashland Oil & Refining Company, was elected president of the National Stripper Well Association succeeding H. M. McClure of Alma, Mich., at the group's annual meeting last week in Fort Worth.

E. W. Hayes, Independence, Kas., was elected vice president, and the posts of executive vice president and secretary-treasurer will be filled later by the new executive committee. This committee comprises J. D. Sandefer, Jr., Breckenridge, Texas; C. F. Roeser, Fort Worth; W. J. Brundred, Oil City, Pa.; Fred Sehmann, Wichita Falls; Ernest Shamblin, Bristow, Okla., and McClure.

New vice presidents elected are D. T. Ring, Columbus, for Ohio; Carl Weideman, Owensboro, for Kentucky; W. I. Lewis, Mt. Vernon, for Illinois; Fred Manning, Denver, for Colorado; J. N. Thelen, Great Falls, for Montana; Clarendon Streeter, Bradford, for Pennsylvania; H. J. Whitehill, Tulsa, for Oklahoma, and Emery Carper, Artesia, for New Mexico. All other vice presidents were reelected.

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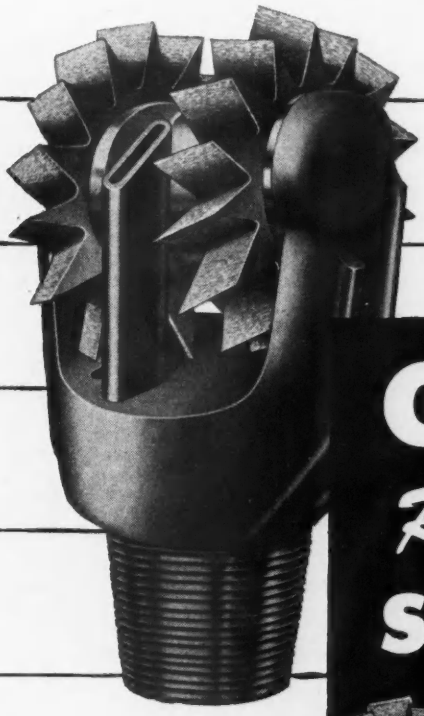
— then use  *the improved*

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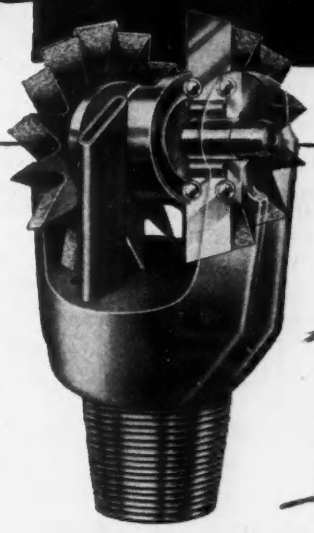

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High DEMAND Promotes Increases in STOCKS

Prepared Under Supervision of
L. J. LOGAN, Associate Editor

ALTHOUGH petroleum demand will be virtually the same in 1946, the first postwar year, as it was in 1945, the final war year, in which all previous records of demand were broken, no important shortages of petroleum products have developed and no scarcities are threatened.

This prospect that petroleum demand in 1946 will be nearly the same as in 1945 was generally unforeseen when the year commenced, and it was necessary that forecasts be repeatedly revised upward as the year progressed. Even now demand exhibits some irregularity, and while it evidently will be nearly the same as last year, it remains to be seen whether it actually will fall slightly under 1945 or slightly exceed 1945.

In the most recent of several forecasts made during the year, the U. S. Bureau of Mines on October 8 estimated that total demand for all oils in 1946 would be approximately 1,939,000,000 barrels, an average of 5,312,000 barrels daily. This would be 7/10 of 1 percent less than the all-time peak of 5,348,000 daily in 1945 and 21.6 percent more than the 4,369,000 daily of 1941.

This forecast represented some downward revision of the bureau's estimate in August that total demand for all oils would be exactly the same as in 1945. The October forecast embodied less detail, however, than the August report, and did not reveal why downward revision was necessary. But it did reveal that the August estimate of total demand for motor fuel was virtually unchanged, with a slight decrease in forecast exports compensated by an increase in estimated domestic demand. Likewise unchanged was the forecast of 38 million barrels of crude exports in 1946.

Therefore, revisions apparently were in products other than motor fuel. Although figures were not given to show changes in trends for export and domestic components of demand for those products, it may be significant that motor fuel data called for reducing the forecast of exports, suggesting that forecasts of other exports may have been lowered.

The October forecast of total demand for all oils in 1946 at 1,939,000,000 barrels was 13 million barrels less than the August forecast of 1,952,000,000 barrels.

Yet the October forecast called for no material change in the August forecast of crude runs to stills or in the August forecasts of domestic production or imports of crude, while the August estimate of a 16 million barrel addition to stocks of crude was lowered to an October forecast of an addition of only 8 million barrels. These circumstances indicated that scaling down of current supply into a balance with the 13 million-barrel lower estimate of export and domestic demand could be achieved only by either or both (1) lower imports of refined products (largely fuel oils) than forecast in August, (2) larger additions to stocks of refined products than expected in August. Actually, there have been for several months comparatively large additions to stocks of principal products, especially fuel oils, and these additions to storage, rather than curtailed fuel oil imports, are mainly instrumental in leaving crude production and runs to stills at the unchanged high levels in the face of slightly lower indicated demand.

These facts and trends have both favorable and warning implications. On the favorable side, they show that the industry has had the good fortune to experience only a temporary and not very great decline in demand for petroleum products, followed by early recovery virtually to wartime peak levels. At present, however, a note of warning is sounded by the trends of changes in inventories. Stocks of crude have not increased greatly above the wartime low levels, but in 1946, and especially since the middle of 1946, there have been relatively large increases in the inventories of refined products. To some extent these increases have been justified, as stocks of some products were down to bare working requirements when the war ended, and more flexibility was needed, especially with the passing of the wartime government coordination of the industry's activities. However, in recent months the comparatively large inventory building has been viewed by some in the industry as a matter of anxiety, and warnings have been given that stocks of refined products are becoming greater than necessary or desirable.

That there are grounds for some anxiety regarding refined product inventories is attested by current statistics. At the middle of October U. S. stocks of finished and unfinished gasoline totaled 86,585,000 barrels, The American Petroleum Institute reported. That was 17,539,000 barrels or 25.4 percent more than the 69,046,000 barrels reported at the same date a year ago. In contrast, the total demand for motor fuel barely equals or falls short of that a year ago. In July, 1946, latest month for which Bureau of Mines demand data are available, total motor fuel demand was 1.2 percent less than in July, 1945, as sharply lower exports more than offset

Latest Revised Forecasts for All Oils, Crude Oil, and Motor Fuel in Year 1946

Figures for 1946 are revised forecasts as published by U. S. Bureau of Mines October 8, 1946. Data for 1941 and 1945 also from U. S. Bureau of Mines.

(THOUSANDS OF BARRELS)

ITEM	Year 1941	Year 1945	Forecast 1946	% Diff. '41-'46	% Diff. '45-'46
ALL OILS:					
Total Demand	1,594,609	1,952,140	1,939,000	+21.6	— 0.7
(Daily Average)	4,369	5,348	5,312	+21.6	— 0.7
CRUDE OIL:					
Supply					
Domestic Production	1,402,228	1,711,103	1,732,000	+23.5	+ 1.2
(Daily Average)	3,842	4,688	4,745	+23.5	+ 1.2
Imports	50,606	74,095	86,000	+69.9	+16.1
(Daily Average)	139	203	236	+69.9	+16.1
Change in Stocks	—18,937	—3,511	+8,000	.....	.....
(Daily Average)	—52	—10	+22	.....	.....
Total Supply	1,471,771	1,788,709	1,810,000	+23.0	+ 1.2
(Daily Average)	4,032	4,901	4,959	+23.0	+ 1.2
Demand:					
Runs to Stills	1,409,192	1,719,534	1,732,000	+23.0	+ 0.7
(Daily Average)	3,861	4,711	4,745	+23.0	+ 0.7
Exports	33,238	32,998	38,000	+14.3	+15.2
(Daily Average)	91	90	104	+14.3	+15.2
Transfers to Fuel Oil and Losses	29,341	36,177	40,000	+36.3	+11.0
(Daily Average)	80	99	110	+36.3	+11.0
Total Demand	1,471,771	1,788,709	1,810,000	+23.0	+ 1.2
(Daily Average)	4,032	4,901	4,959	+23.0	+ 1.2
MOTOR FUEL					
Exports	27,083	88,850	47,000	+73.5	—47.1
(Daily Average)	74	243	129	+73.5	—47.1
Domestic Demand	667,505	696,407	*721,000	+ 8.0	+ 3.5
(Daily Average)	1,829	1,908	1,975	+ 8.0	+ 3.5
Total Demand	694,588	785,257	768,000	+10.6	— 2.2
(Daily Average)	1,903	2,151	2,104	+10.6	— 2.2

* Includes military purchases of 17,000 and civilian demand in Continental U S. of 704,000.

(This is The Oil Weekly's latest quarterly analysis of the the industry's economic situation and outlook, being based on results in the first three quarters of the year and current trends and forecasts.)

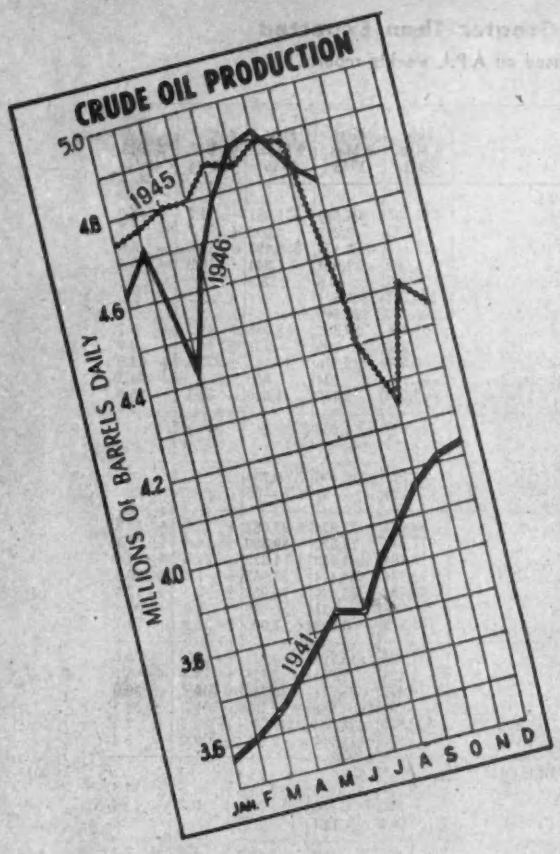
Petroleum Demand and Supply in First 9 Months Greater Than Expected

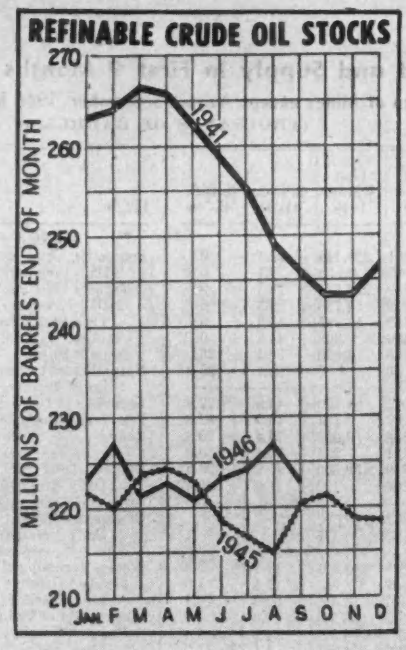
(Data from U. S. Bureau of Mines except August-September 1946 based on A.P.I. weekly reports.)

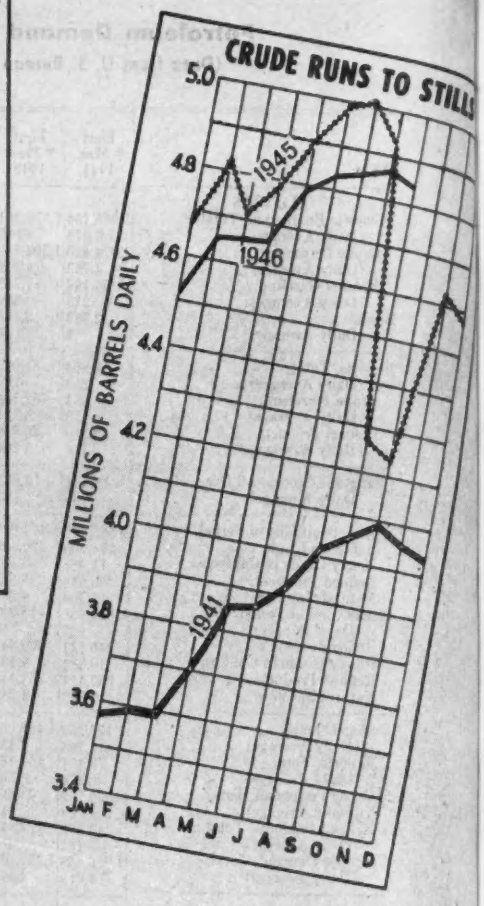
(THOUSANDS OF BARRELS)

ITEM	First 9 Mos. 1941	First 9 Mos. 1945	First 9 Mos. 1946	% Diff. '41-'46	% Diff. '45-'46
ALL OILS					
Domestic Production, Total	1,085,154	1,390,301	1,379,149	+ 27.1	— 0.8
(Daily Average)	3,975	5,093	5,052	+ 27.1	— 0.8
Crude Petroleum	1,024,420	1,304,759	1,293,544	+ 26.3	— 0.9
(Daily Average)	3,753	4,779	4,738	+ 26.3	— 0.9
Natural Gasoline	58,198	83,382	83,985	+ 44.3	+ 0.7
(Daily Average)	213	306	308	+ 44.3	+ 0.7
Benzol	2,536	2,160	1,620	— 36.1	— 25.0
(Daily Average)	9	8	6	— 36.1	— 25.0
Imports, Total	68,664	81,017	99,500	+ 44.9	+ 22.8
(Daily Average)	252	297	364	+ 44.9	+ 22.8
Crude Petroleum	36,334	52,168	63,000	+ 73.4	+ 20.8
(Daily Average)	133	191	231	+ 73.4	+ 20.8
Refined Products	32,330	28,849	36,500	+ 12.9	+ 26.5
(Daily Average)	119	106	133	+ 12.9	+ 26.5
Changes in Stocks, All Oils	—18,441	—16,882	+48,080	.....	.....
(Daily Average)	—68	—62	+176	.....	.....
Stocks, Beginning of Period	563,277	477,089	463,579	— 17.7	— 2.8
Refinable Crude	264,709	220,862	218,763	— 17.4	— 1.0
Heavy Crude in California	11,906	6,107	4,496	— 62.2	— 26.4
Refined Products	280,958	245,868	235,998	— 16.0	— 4.0
Natural Gasoline	5,704	4,252	4,322	— 24.2	+ 1.6
Stocks, End of Period	544,836	460,207	511,659	— 6.1	+ 11.2
(Days' Supply)	127	84	98	— 22.8	— 16.7
Refinable Crude	246,731	220,642	223,043	— 9.6	+ 1.1
Heavy Crude in California	10,321	4,437	5,262	— 49.0	+ 18.6
Refined Products	282,411	231,143	276,354	— 2.1	+ 19.6
Natural Gasoline	5,373	3,985	7,000	+ 30.3	+ 75.7
Demand, Total	1,172,259	1,488,200	1430,569	+ 22.0	— 3.9
(Daily Average)	4,294	5,451	5,240	+ 22.0	— 3.9
Exports, Total	75,401	151,165	118,000	+ 56.5	— 21.9
(Daily Average)	276	554	432	+ 56.5	— 21.9
Crude Petroleum, Total	25,722	23,667	29,000	+ 12.7	+ 22.5
(Daily Average)	94	87	106	+ 12.7	+ 22.5
Refined Products, Total	49,679	127,498	89,000	+ 79.2	— 30.2
(Daily Average)	182	467	326	+ 79.2	— 30.2
Domestic Demand, Total	1,096,858	1,337,035	1,312,569	+ 19.7	— 1.8
(Daily Average)	4,018	4,897	4,808	+ 19.7	— 1.8
CRUDE PETROLEUM					
Supply:					
Domestic Production, Total	1,024,420	1,304,759	1,293,544	+ 26.3	— 0.9
(Daily Average)	3,752	4,780	4,738	+ 26.3	— 0.9
Imports, Total	36,334	52,168	63,000	+ 73.4	+ 20.8
(Daily Average)	133	191	231	+ 73.4	+ 20.8
Change in Stocks (Incl. Calif. Heavy)	—19,563	—1,691	+5,046	.....	.....
(Daily Average)	—72	—6	+18	.....	.....
Stocks, Beginning of Period	276,615	226,770	223,259	— 19.3	— 1.5
Stocks, End of Period	257,052	225,079	228,305	— 11.2	+ 1.4
(Days' Supply)	65	45	.....	.....	.....
Supply, Total	1,080,317	1,358,618	1,351,498	+ 25.1	— 0.5
(Daily Average)	3,957	4,977	4,951	+ 25.1	— 0.5
Demand:					
Runs to Still, Total	1,035,896	1,307,483	1,295,381	+ 25.0	— 0.9
(Daily Average)	3,794	4,789	4,745	+ 25.0	— 0.9
Domestic Crude	999,291	1,256,481	1,233,381	+ 23.4	— 1.8
(Daily Average)	3,660	4,602	4,518	+ 23.4	— 1.8
Foreign Crude	36,605	51,002	62,000	+ 69.4	+ 21.6
(Daily Average)	134	187	227	+ 69.4	+ 21.6
Exports, Total	25,722	23,667	29,000	+ 12.7	+ 22.5
(Daily Average)	94	87	106	+ 12.7	+ 22.5
Transfers to Fuel Oil Stocks	10,584	18,752	19,450	+ 83.8	+ 3.7
(Daily Average)	39	69	71	+ 83.8	+ 3.7
Distillate Fuel Oil	1,856	2,327	2,337	+ 25.9	+ 0.4
Residual Fuel Oil	8,728	16,425	17,113	+ 96.1	+ 4.2
Used as Fuel, and Losses	8,115	8,716	7,667	— 5.5	— 12.0
(Daily Average)	30	32	28	— 5.5	— 12.0
Demand, Total	1,080,317	1,358,618	1,351,498	+ 25.1	— 0.5
(Daily Average)	3,957	4,977	4,951	+ 25.1	— 0.5
KEROSINE					
Production, Total	53,106	58,470	79,351	+ 49.4	+ 35.7
(Daily Average)	195	214	291	+ 49.4	+ 35.7
Percent Yield from Crude	5.1	4.5	6.1	.....	.....
Imports, Total	124	.....	.....	.....	.....
(Daily Average)	.....	.....	.....	.....	.....
Change in Stocks	+2,150	+2,525	+10,387	.....	.....
(Daily Average)	+8	+9	+38	.....	.....
Stocks, Beginning of Period	9,512	11,150	10,421	+ 9.6	— 6.5
Stocks, End of Period	11,662	13,675	20,808	+ 78.4	+ 52.2
(Days' Supply)	62	67	82	+ 32.3	+ 22.4
Demand, Total	51,080	55,945	68,964	+ 35.0	+ 23.3
(Daily Average)	187	205	253	+ 35.0	+ 23.3
Exports, Total	1,614	4,568	7,250	+349.2	+ 58.7
(Daily Average)	6	17	27	+349.2	+ 58.7
Domestic Demand	49,466	51,377	61,714	+ 24.8	+ 20.1
(Daily Average)	181	188	226	+ 24.8	+ 20.1

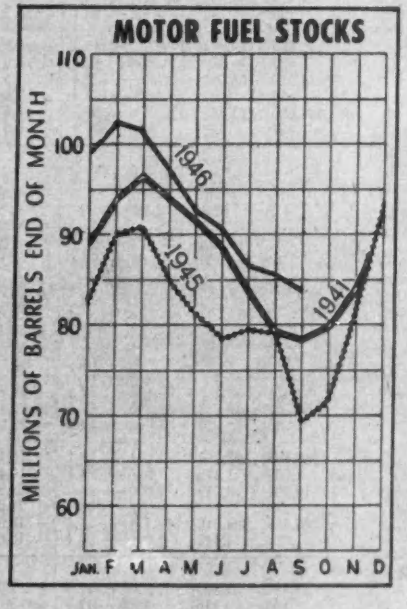
ITEM	First 9 Mos. 1941	First 9 Mos. 1945	First 9 Mos. 1946	% Diff. '41-'46	% Diff. '45-'46
MOTOR FUEL					
Production Total	511,253	605,524	571,081	+ 11.7	— 5.7
(Daily Average)	1,873	2,218	2,092	+ 11.7	— 5.7
Refinery Gasoline, Total	455,115	533,431	503,494	+ 10.6	— 5.6
(Daily Average)	1,667	1,954	1,844	+ 10.6	— 5.6
(Yield from Crude)	43.9	40.8	38.9	.....	.....
Cracked	249,712	302,871	.....	.....	.....
Straight Run	205,403	230,560	.....	.....	.....
Natural Gasoline, etc.	58,198	83,382	83,985	+ 44.3	+ 0.7
(Daily Average)	213	305	308	+ 44.3	+ 0.7
Less Sales of L.P.G.	4,596	12,815	17,168	+273.5	+ 34.0
Less Transfers Cycle Prods.	.....	634	850	.....	+ 34.1
Benzol	2,536	2,160	1,620	— 36.1	— 25.0
Imports, Total	261	1,603	.....	.....	.....
(Daily Average)	1	6	.....	.....	.....
Change in Stocks	—5,513	—8,400	—9,730	.....	.....
(Daily Average)	—20	—31	—36	.....	.....
Stocks, Beginning of Period	83,647	77,874	93,682	+ 12.0	+ 20.3
Finished Gasoline	77,943	73,622	89,360	+ 14.6	+ 21.4
Natural Gasoline	5,704	4,252	4,322	— 24.2	+ 1.6
Stocks, End of Period	78,134	69,474	83,952	+ 7.4	+ 20.8
Finished Gasoline	72,761	65,489	76,952	+ 5.8	+ 17.5
(Days' Supply)	41	31	39	— 4.9	+ 25.8
Natural Gasoline	5,373	3,985	7,000	+ 30.3	+ 75.7
Demand, Total	517,028	615,726	580,811	+ 12.3	— 5.7
(Daily Average)	1,894	2,255	2,128	+ 12.3	— 5.7
Exports, Total	16,173	78,772	33,114	+104.7	— 58.0
(Daily Average)	59	288	122	+104.7	— 58.0
Domestic Demand	500,855	536,954	547,697	+ 9.4	+ 2.0
(Daily Average)	1,835	1,967	2,006	+ 9.4	+ 2.0
DISTILLATE FUEL OIL					
Production, Total	139,251	189,075	216,133	+ 55.2	+ 14.3
(Daily Average)	510	693	792	+ 55.2	+ 14.3
Percent Yield from Crude	13.4	14.5	16.7	.....	.....
Transfers from Crude	1,856	2,327	2,337	+ 25.9	+ 0.4
(Daily Average)	7	9	9	+ 25.9	+ 0.4
Imports, Total	3,790	3,368	4,650	+ 22.7	+ 38.1
(Daily Average)	14	12	17	+ 22.7	+ 38.1
Change in Stocks	+8,501	+6,726	+24,049	.....	.....
(Daily Average)	+31	+25	+88	.....	.....
Stocks, Beginning of Period	42,911	38,333	35,778	— 16.6	— 6.7
Stocks, End of Period	51,412	45,059	59,827	+ 16.4	+ 32.8
(Days' Supply)	103	65	82	— 20.4	+ 26.2
Demand, Total	136,396	188,044	199,071	+ 46.0	+ 5.9
(Daily Average)	500	689	729	+ 46.0	+ 5.9
Exports, Total	11,570	26,565	27,000	+133.4	+ 1.6
(Daily Average)	43	97	99	+133.4	+ 1.6
Domestic Demand	124,826	161,479	172,071	+ 37.8	+ 6.6
(Daily Average)	457	592	630	+ 37.8	+ 6.6
RESIDUAL FUEL OIL					
Production, Total	250,703	356,494	330,395	+ 31.8	— 7.3
(Daily Average)	918	1,306	1,210	+ 31.8	— 7.3
Percent Yield from Crude	24.2	27.3	25.5	.....	.....
Transfers from Crude	8,728	16,425	17,113	+ 96.1	+ 4.2
(Daily Average)	32	60	63	+ 96.1	+ 4.2
Imports, Total	25,400	23,285	29,500	+ 16.1	+ 26.7
(Daily Average)	93	85	108	+ 16.1	+ 26.7
Change in Stocks	—4,274	—7,561	+15,237	.....	.....
(Daily Average)	—16	—28	+56	.....	.....
Stocks, Beginning of Period	88,026	50,383	37,158	— 57.8	— 26.2
Stocks, End of Period	83,752	42,822	52,395	— 37.4	+ 22.4
(Days' Supply)	80	29	40	— 50.0	+ 37.9
Demand, Total	289,105	403,765	361,771	+ 25.1	— 10.4
(Daily Average)	1,059	1,479	1,325	+ 25.1	— 10.4
Exports, Total	10,609	9,749	7,000	— 34.0	— 28.2
(Daily Average)	39	36	26	— 34.0	— 28.2
Domestic Demand	278,496	394,016	354,771	+ 27.4	— 10.0
(Daily Average)	1,020	1,443	1,299	+ 27.4	— 10.0
LUBRICATING OILS					
Production Total	28,884	31,805	32,624	+ 12.9	+ 2.6
(Daily Average)	106	116	120	+ 12.9	+ 2.6
Percent Yield from Crude	2.8	2.4	2.5	.....	.....
Imports, Total	.....	.....	24	.....	.....
(Daily Average)	.....	.....	.....	.....	.....
Change in Stocks	—1,352	—975	—473	.....	.....
(Daily Average)	—5	—4	—2	.....	.....
Stocks, Beginning of Period	8,767	7,815	7,773	— 11.3	— 0.5
Stocks, End of Period	7,415	6,840	7,300	— 1.6	+ 6.7
(Days' Supply)	67	57	60	— 10.4	+ 5.3
Demand, Total	30,236	32,780	33,121	+ 9.5	+ 1.0
(Daily Average)	111	120	121	+ 9.5	+ 1.0
Exports, Total	6,784	5,177	9,428	+ 39.0	+ 82.1
(Daily Average)	25	19	34	+ 39.0	+ 82.1
Domestic Demand	23,452	27,603	23,693	+ 1.0	— 14.2
(Daily Average)	86	101	87	+ 1.0	— 14.2

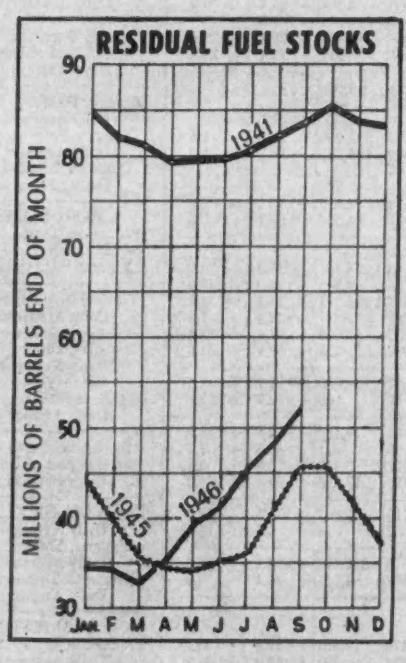


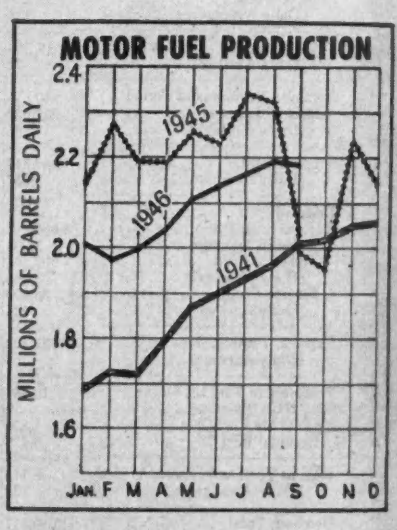


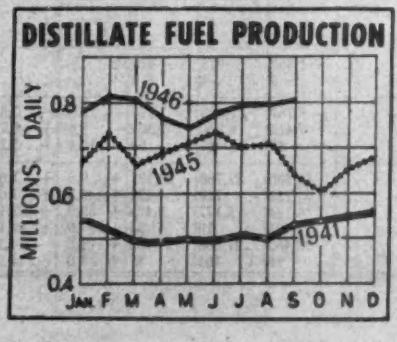


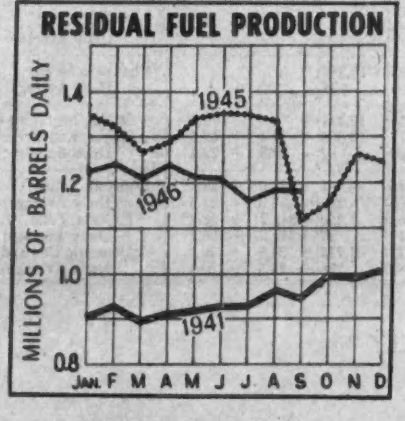
Monthly TRENDS

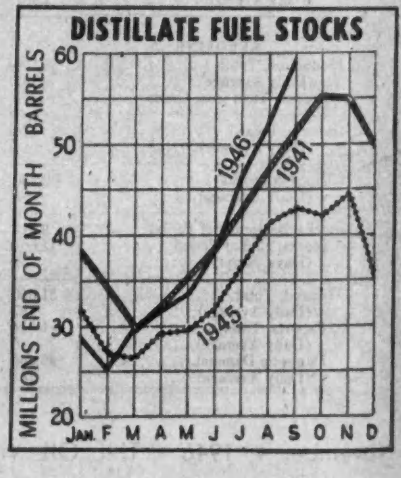












Demand for All Oils and Principal Products in 1946 as Estimated in Bureau of Mines August Forecast
(THOUSANDS OF BARRELS)

ITEM	Year 1941	Year 1945	Forecast 1946	% Diff. '41-'46	% Diff. '45-'46
ALL OILS:					
Total Demand	1,594,609	1,952,140	1,952,000	+22.4	.....
(Daily)	4,369	5,348	5,348	+22.4	.....
Exports	108,830	184,273	171,000	+57.1	— 7.2
(Daily)	298	505	469	+ 57.1	— 7.2
Domestic Demand	1,485,779	1,767,867	1,781,000	+ 19.9	+ 0.7
(Daily)	4,071	4,843	4,879	+ 19.9	+ 0.7
MOTOR FUEL:					
Total Demand	694,588	785,257	769,000	+ 10.7	— 2.1
(Daily)	1,903	2,151	2,107	+ 10.7	— 2.1
Exports	27,083	88,850	52,000	+ 92.0	— 41.5
(Daily)	74	243	143	+ 92.0	— 41.5
Domestic Demand	667,505	696,407	717,000	+ 7.4	+ 3.0
(Daily)	1,829	1,908	1,964	+ 7.4	+ 3.0
DISTILLATE FUEL OIL:					
Total Demand	189,749	259,580	285,000	+ 50.2	+ 9.8
(Daily)	520	711	781	+ 50.2	+ 9.8
Exports	16,925	33,827	39,000	+130.4	+ 15.3
(Daily)	46	93	107	+130.4	+ 15.3
Domestic Demand	172,824	225,753	246,000	+ 42.3	+ 9.0
(Daily)	474	618	674	+ 42.3	+ 9.0
RESIDUAL FUEL OIL:					
Total Demand	397,536	535,001	502,000	+ 26.3	— 6.2
(Daily)	1,089	1,466	1,375	+ 26.3	— 6.2
Exports	14,114	11,919	10,000	— 29.1	— 16.1
(Daily)	39	33	27	— 29.1	— 16.1
Domestic Demand	383,422	523,082	492,000	+ 28.3	— 5.9
(Daily)	1,050	1,433	1,348	+ 28.3	— 5.9
KEROSINE:					
Total Demand	72,690	81,753	101,000	+ 38.9	+ 23.5
(Daily)	199	224	277	+ 38.9	+ 23.5
Exports	3,221	6,158	10,000	+210.5	+ 62.4
(Daily)	9	17	28	+210.5	+ 62.4
Domestic Demand	69,469	75,595	91,000	+ 31.0	+ 20.4
(Daily)	190	207	249	+ 31.0	+ 20.4

Sources of Supply for Meeting Demand as Estimated in Bureau of Mines August Forecast
(THOUSANDS OF BARRELS)

ITEM	Year 1941	Year 1945	Forecast 1946	% Diff. '41-'46	% Diff. '45-'46
TOTAL SUPPLY	1,594,609	1,952,140	1,952,000	+22.4	.....
(Daily Average)	4,369	5,348	5,348	+22.4	.....
DOMESTIC PRODUCTION	1,486,518	1,825,257	1,855,000	+24.8	+ 1.6
(Daily Average)	4,073	5,001	5,083	+24.8	+ 1.6
Crude Oil	1,402,228	1,711,103	1,739,000	+24.0	+ 1.6
(Daily Average)	3,842	4,688	4,765	+24.0	+ 1.6
Other Oils	84,290	114,154	116,000	+37.6	+ 1.6
(Daily Average)	231	313	318	+37.6	+ 1.6
IMPORTS, TOTAL	97,142	113,373	131,000	+34.9	+15.5
(Daily Average)	266	311	359	+34.9	+15.5
Crude Oil	50,606	74,095	85,000	+68.0	+14.7
(Daily Average)	139	203	233	+68.0	+14.7
Residual Fuel Oil	37,369	31,557	38,000	+ 1.7	+20.4
(Daily Average)	102	87	104	+ 1.7	+20.4
Distillate Fuel Oil	5,074	4,754	5,000	— 1.5	+ 5.2
(Daily Average)	14	13	14	— 1.5	+ 5.2
Other Oils	4,093	2,967	3,000	—26.7	+ 1.1
(Daily Average)	11	8	8	—26.7	+ 1.1
CHANGE IN STOCKS	—10,949	—13,510	+34,000	.....	.....
(Daily Average)	—30	—37	+93	.....	.....
Crude Oil	—18,937	—3,511	+16,000	.....	.....
(Daily Average)	—52	—10	+44	.....	.....
Finished Gasoline	+8,470	+15,738	—8,000	.....	.....
(Daily Average)	+23	+43	—22	.....	.....
Residual Fuel Oil	—4,831	—13,225	+6,000	.....	.....
(Daily Average)	—13	—36	+16	.....	.....
Distillate Fuel Oil	+7,015	—2,555	+9,000	.....	.....
(Daily Average)	+19	—7	+25	.....	.....
Kerosine	+87	—729	+4,000	.....	.....
(Daily Average)	.....	—2	+11	.....	.....
All Other Oils	—2,753	—9,228	+7,000	.....	.....
(Daily Average)	—7	—25	+19	.....	.....

the increase in domestic demand. For the first nine months of 1946, total motor fuel demand was 5.7 percent less than in the like months of 1945, but currently the comparison with a year ago is better, as shown by the mentioned July results.

Instrumental in causing anxiety regarding gasoline stocks is the fact that this year the industry is beginning the fall-winter buildup from a starting point of about 85 million barrels, which is the highest level in history, comparing with 70 million to 80 million barrels at the beginning of the season in former years. In recent years the fall-winter accumulations of gasoline have ranged from 20 million to 35 million barrels, indicating it is quite possible that at the beginning of next spring gasoline stocks will be at a new all-time peak of 110 million barrels or more and that the industry will have virtually all available gasoline tankage full. The high point last spring was approximately 105 million barrels, and the all-time high was about 109 million barrels in March, 1942, when enemy submarines disrupted U. S. tanker movements. In the spring of 1945 gasoline stocks climbed only to 99 million barrels.

There is danger, nevertheless, of erroneously appraising the gasoline inventory situation on the pessimistic side. For there are several highly important considerations indicating that there is not in progress any serious over-stocking of gasoline. In the first place, the wartime pattern of changes in gasoline stocks is not a safe guide in determining the desirable levels of stocks now. Under wartime streamlining, coordination, and heavy selling to the government, it was possible to supply demand with minimum working stocks. If shortages arose, government-industry coordination channeled supplies where needed. Now the industry is back more or less on a free and competitive basis and the meeting of demand is the sum of the uncoordinated efforts of individual companies, each attempting to balance its own supply with its own indicated demand. Under these normal and traditional conditions, more flexibility and more stocks are needed than in the war years.

Outmoded Pattern

In the second place, the prewar pattern of changes in gasoline stocks likewise is not a safe guide now, for the reason that present demand is substantially greater than prewar demand, justifying more than prewar stocks. In the first nine months of 1946 the total de-

U. S. Crude Runs to Stills and Percent of Refinery Capacity Used By Districts, September and First 9 Months

Runs from Bureau of Mines, except August and September, 1946, from American Petroleum Institute. Capacities from American Petroleum Institute.
(THOUSANDS OF BARRELS)

REFINING DISTRICT	CRUDE RUNS IN SEPTEMBER: Total Amount Run				CRUDE RUNS IN SEPTEMBER: Daily Average Run			REFINING CAPACITY IN USE, SEPTEMBER: Daily Capacity			REFINING CAPACITY IN USE, SEPTEMBER: Percent Capacity Used			TOTAL AMOUNT OF CRUDE RUN TO STILLS, FIRST 9 MONTHS			
	Sept., 1941	Sept., 1945	Sept., 1946	% Diff. '45-'46	Sept., 1941	Sept., 1945	Sept., 1946	Sept., 1941	Sept., 1945	Sept., 1946	Sept., 1941	Sept., 1945	Sept., 1946	Jan.-Sept., 1941	Jan.-Sept., 1945	Jan.-Sept., 1946	% Diff. '45-'46
East Coast	18,270	21,415	23,545	+ 9.9	609	714	785	673	792	839	90.5	90.2	93.6	157,768	203,148	208,827	+ 2.8
Appalachian	4,650	3,991	4,557	+14.2	155	133	152	166	196	205	93.4	67.9	74.1	39,865	42,724	41,334	— 3.3
District No. 1	.....	2,727	3,054	+12.0	.....	91	102	.....	146	143	.....	62.3	71.3	.....	26,930	26,062	— 3.2
District No. 2	.....	1,264	1,503	+18.9	.....	42	50	.....	50	62	.....	84.0	80.6	.....	15,794	15,272	— 3.3
Indiana, Illinois, Kentucky	22,076	19,494	23,876	+22.4	736	650	796	752	856	870	97.9	75.9	91.5	184,621	210,459	208,221	— 1.1
Oklahoma, Kansas, Missouri	11,116	11,685	11,195	— 4.2	371	390	373	413	469	469	89.8	83.2	79.5	94,311	106,128	103,363	— 2.6
Texas Inland	5,742	6,805	6,302	— 7.4	191	227	210	263	330	330	72.6	68.8	63.6	49,425	65,585	58,313	—11.1
Texas Gulf	31,192	25,029	36,020	+43.9	1,040	835	1,201	1,097	1,237	1,225	94.8	67.5	98.0	264,930	307,462	320,760	+ 4.3
Louisiana Gulf	4,905	8,735	10,298	+17.9	163	291	343	156	260	321	104.5	111.9	106.9	39,669	71,877	89,311	+24.3
Arkansas and Louisiana Inland	2,694	2,445	1,651	—32.5	90	81	55	95	126	126	94.7	64.3	43.7	21,549	22,102	15,939	—27.9
Rocky Mountain	3,273	3,652	4,344	+18.9	109	122	145	136	172	178	80.1	70.9	81.5	25,152	35,225	35,736	+ 1.5
District No. 3	.....	351	344	— 2.0	.....	12	12	.....	13	13	.....	92.3	92.3	.....	3,382	3,069	— 9.3
District No. 4	.....	3,301	4,000	+21.2	.....	110	133	.....	159	165	.....	69.2	80.6	.....	31,843	32,667	+ 2.6
California	17,563	24,985	23,657	— 5.3	585	832	788	787	997	994	74.3	83.5	79.3	158,606	242,773	213,577	—12.0
Total United States	121,481	128,236	145,439	+13.4	4,049	4,275	4,848	4,538	5,435	5,557	89.2	78.6	87.2	1,035,896	1,307,483	1,295,381	— 0.9

U. S. Crude Oil Production, by States and Districts, September and First 9 Months
From U. S. Bureau of Mines, except August and September, 1946, estimated from A.P.I. weekly reports.
(THOUSANDS OF BARRELS)

State or District	MONTH TOTAL, SEPTEMBER				Daily Average in September			TOTAL, FIRST 9 MONTHS			
	1941	1945	1946	% Diff. 1945-'46	1941	1945	1946	1941	1945	1946	% Diff. 1945-'46
Alabama	.....	6	31	+416.7	.....	.2	1.0	.....	132	293	+122.0
Arkansas	2,226	2,276	2,208	— 3.0	74.2	75.9	73.6	19,641	21,624	20,863	— 3.5
California	19,403	25,991	26,122	+ 0.5	646.8	866.4	870.7	170,969	249,491	235,329	— 5.7
Colorado	204	421	1,145	+172.0	6.8	14.0	38.2	1,530	3,000	8,533	+184.4
Florida	.....	4	7	+ 75.0	.....	.1	.2	.....	25	48	+ 92.0
Illinois	12,590	5,747	6,207	+ 8.0	419.7	191.6	206.9	95,298	56,094	56,822	+ 1.3
Indiana	595	387	574	+ 48.3	19.8	12.9	19.2	5,630	3,622	5,098	+ 40.8
Kansas	7,393	7,832	8,265	+ 5.5	246.5	261.0	275.5	60,030	72,836	71,829	— 1.4
Kentucky	391	814	932	+ 14.5	13.1	27.2	31.1	3,615	7,552	8,182	+ 8.3
Louisiana	9,613	10,591	11,738	+ 10.8	320.4	353.0	391.3	84,231	97,224	104,640	+ 7.6
North Louisiana	1,984	1,964	2,616	+ 33.2	66.1	65.4	87.2	18,403	17,328	22,060	+ 27.3
South Louisiana	7,629	8,627	9,122	+ 5.7	254.3	287.6	304.1	65,828	79,896	82,580	+ 3.4
Michigan	1,545	1,336	1,440	+ 7.8	51.5	44.5	48.0	11,048	13,031	12,934	— 0.7
Mississippi	1,694	1,541	2,199	+ 42.7	56.5	51.4	73.3	8,970	13,970	16,848	+ 20.6
Missouri	4	3	4	+ 33.3	.1	.1	.1	35	32	40	+ 25.0
Montana	642	689	732	+ 6.2	21.4	23.0	24.4	5,511	6,353	6,753	+ 6.3
Nebraska	216	22	21	— 4.5	7.2	.8	.7	1,303	233	213	— 8.6
New Mexico	3,310	3,054	2,995	— 1.9	110.3	101.8	99.8	29,184	28,348	27,226	— 4.0
New York	445	377	415	+ 10.1	14.8	12.6	13.8	3,838	3,466	3,678	+ 6.1
Ohio	300	229	242	+ 5.7	10.0	7.6	8.1	2,581	2,133	2,173	+ 1.9
Oklahoma	13,102	11,517	10,823	— 6.0	436.7	383.9	360.8	115,633	102,993	102,047	— 0.9
Pennsylvania	1,440	996	1,076	+ 8.0	48.0	33.2	35.9	12,352	9,468	9,679	+ 2.2
Tennessee	1	1	1	.....	.....	.....	.....	9	9	9	.....
*Texas	41,387	55,684	62,635	+ 12.5	1,379.6	1,856.1	2,087.8	368,053	583,475	569,352	— 2.4
E. Texas, Field	10,450	9,387	9,760	+ 4.0	348.3	312.9	325.3	98,225	102,088	90,950	— 10.9
Rest of E. Texas	2,508	3,720	4,338	+ 16.6	83.6	124.0	144.6	21,646	38,428	39,101	+ 1.8
North Texas	3,981	4,243	4,861	+ 14.6	132.7	141.4	162.0	35,653	40,795	43,448	+ 6.5
West Texas	7,922	13,143	15,544	+ 18.3	264.1	438.1	518.1	66,561	133,361	141,946	+ 6.4
Texas Panhandle	2,488	2,640	2,550	— 3.4	82.9	88.0	85.0	21,170	24,221	22,736	— 6.1
G. Coast, Upper	8,385	13,748	13,949	+ 1.5	279.5	458.3	465.0	71,848	150,550	133,373	— 11.4
Southwest Texas	6,218	8,584	11,633	+ 35.5	207.3	286.1	387.8	55,324	94,505	97,928	+ 3.6
Utah	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....
West Virginia	289	223	213	— 4.5	9.6	7.4	7.1	2,550	2,179	2,144	— 1.6
Wyoming	2,530	2,645	3,259	+ 23.2	84.3	88.2	108.6	22,406	27,469	28,811	+ 4.9
Total, U.S.	119,320	132,386	143,284	+ 8.2	3,977.3	4,412.9	4,776.1	1,024,420	1,304,759	1,293,544	— 0.9

* Texas data by districts based on A.P.I., and so do not agree exactly with state total, which is on Bureau of Mines basis.

mand for motor fuel was 12.3 percent larger than that in the like months of 1941, while September 30 stocks were only 7.4 percent higher in 1946 than in 1941. On the basis of those rates of demand, the 84 million barrels of motor fuel in storage September 30, 1946, represented only 39 days' supply, whereas the 78 million barrels of storage on September 30, 1941, was equivalent to 41 days' supply. Thus related to demand, the stocks at the end of September this year were about 5 percent lower than those at the end of September, 1941.

Further tending to sanction recent trends of gasoline stocks has been the action of the gasoline market itself. Advent of colder weather has tempered gasoline demand, but the demand holds generally firm and prices remain generally steady.

The relatively favorable situation and outlook for gasoline mean much for the industry's general outlook, since gasoline remains the principal product and is the principal source of revenue.

Nevertheless, the situations of other products have important implications, and they are involved substantially in an analysis of the present general inventory position of the industry. Much of the comparatively large buildup this year in refined product stocks has been accounted for by kerosine, distillate fuel oil, and residual fuel oil. Storage of each is sharply higher than a year ago. At the end of September, 1946, the stocks of all oils were approximately 51 million barrels greater than on September 30, 1945, in totaling 511,659,000 barrels. But crude oil accounted for only 3 million barrels of that total increase, and all refined products in the aggregate showed an increase of over 45 million barrels. Of that 45 million-barrel increase, a little less than a third (14.5 million barrels) was in motor fuel and a little over two thirds (31.5 million barrels) was in kerosine, distillate, and residual fuel oil. This 31.5 million barrels in turn consisted nearly 50 percent of distillate, the increases having included 7.1 million for kerosine, 14.8 million for distillate, and 9.6 million for residual. Nearly all the gain since last fall in the stocks of all oils has occurred in the calendar year 1946, though individual products have followed seasonal trends, and the stock-building of 1946 has occurred wholly since last spring and largely since the middle of the year. The increases after mid-year led to the warnings that stocks were being over-built.

Distillate Fuel Stocks

Above data turn the spotlight on stocks of distillate fuel oil, which have been increased very sharply. Building of these stocks has continued unabated through recent weeks, pending the advent of colder weather and commencement of the heavy consuming season when withdrawals will occur. With the peak not yet in sight in less than two to four weeks, distillate fuel stocks were already at the unprecedented level of 64,761,000 barrels on October 19 of this year. That amount was 20,429,000 barrels or 46.1 percent more than the 44,332,000 barrels on hand October 20 last year. Considered alone, this extraordinary stockpiling of distillate fuel oil naturally raises the question of how it could be justified. For there has not occurred any such increase in demand for the product. In the first nine months of 1946 the total demand for distillate was only 5.9 percent greater than demand in the like months of 1945, with domestic requirements up 6.6 percent and exports up only about 1.6 percent.

As in the case of gasoline, however, the distillate fuel situation is not as unhealthy as it may appear, because comparisons with the past are inadequate. A year ago, stocks were at abnormally low levels because of the war and there were temporary shortages last spring. For an idea of the proper level of distillate stocks under peacetime conditions, it is better to go back to 1941. The present record-breaking stocks of 64,761,000 barrels do not look quite so enormous when it is found that in 1941 the stocks reached a pre-1946 peak of 54,983,000 barrels in the week ended November 15, 1941.

If present distillate stocks should con-

Stocks of Crude Petroleum in U. S. by Grades, at End of September
(Based on Weekly Reports of U. S. Bureau of Mines)
(THOUSANDS OF BARRELS)

GRADE OR ORIGIN	Sept. 27, 1941	Sept. 29, 1945	Sept. 28, 1946	Change, 1941-1946
Pennsylvania Grade	3,881	2,075	2,449	— 1,432
Other Appalachian	1,433	1,310	1,907	+ 474
Lima-Michigan	961	981	1,134	+ 173
Illinois-Indiana	19,274	13,659	16,412	— 2,862
Arkansas	2,809	2,628	2,473	— 336
Kansas	8,150	9,155	8,776	+ 626
Louisiana	12,133	12,659	11,101	— 1,032
Northern	4,082	3,062	3,078	— 1,004
Gulf Coast	8,051	9,597	8,023	— 28
Mississippi	2,010	1,412	2,739	+ 729
New Mexico	7,279	6,370	5,926	— 1,353
Oklahoma	53,714	34,135	31,801	—21,913
Texas	82,130	109,866	103,844	+21,714
East Texas	20,154	18,919	15,169	— 4,985
West Texas	17,118	33,045	37,870	+20,752
Gulf Texas	24,542	30,315	27,734	+ 3,192
Other Texas	20,316	27,587	23,071	+ 2,755
Panhandle	.....	4,116	3,996	.....
North	.....	6,675	5,538	.....
South	.....	8,112	5,359	.....
Other	.....	8,684	8,178	.....
Rocky Mountain	15,702	6,893	9,570	— 6,132
California	34,783	17,518	20,940	—13,843
Foreign	2,390	3,726	3,971	+ 1,581
Total Gasoline Bearing in U.S.	246,649	222,387	223,043	—23,606
Heavy in California	10,425	4,323	5,262	— 5,163
Total in U.S.	257,074	226,710	228,305	—28,769

tinue to increase at recent rates until mid-November, they would then total around 69½ million barrels. That would be 14½ million barrels or 26.4 percent more than the 55 million barrels held November 15, 1941. While that is a substantial difference, it is not equal to the increase of nearly 50 percent which has occurred since 1941 in the demand for distillate fuel. On the contrary, in relation to demand, present stocks are materially lighter than those of 1941. In the first nine months of 1946 the total demand for distillate averaged 729,000 barrels daily or 46 percent more than the 500,000 daily in the like months of 1941, with domestic use up 37.8 percent and exports more than double. Therefore, the 59,827,000 barrels of distillate stocks at the end of September this year represented only 82 days' supply at this year's rate of demand, whereas the 51,412,000 barrels held September 30, 1941, were equivalent to 103 days' supply at the 1941 rate of demand.

The markets for distillate fuel oil so far do not show any ill effects of the present large inventories. On the contrary, latest market reports have cited instances in which marketers have advanced their quotations on No. 2 and other light fuel oils. Again as in the case of motor fuel, it is indicated that expansion of demand for distillate will continue on into the future as more oil burners for heating and more diesel engines, tractors, and other machines using these light fuel oils are manufactured and put into use. At present the consumption of distillate fuel is greater than the use of motor fuel in 1925.

Kerosine Demand

Closely related to the lighter grades of distillate fuel oil, kerosine has experienced similar increases in demand which explain and partially justify the sharp increases this year in stocks of that product. In the first nine months of this year, total demand for kerosine averaged 253,000 barrels daily, an increase of 23 percent over the 205,000 daily of the like months of 1945 and 35 percent more than in the first nine months of 1941. Exports are up relatively more than domestic use, but the latter has shown for this year a 20 percent increase over last year and a 25 percent gain over 1941. Stocks have been increased out of proportion to the gains in demand, however, and those of September 30 this year were equivalent to 82 days' supply at current consumption rates, compared with 67 days' supply held a year previously and 62 days' supply held September 30, 1941.

Stocks of residual fuel oil currently total approximately 56 million barrels, being about 15 million barrels or 37 percent above the 41 million barrels held a year ago. (These figures do not include heavy crude oil in California, as in some reports on residual stocks.) This increase in stocks has occurred in the face of the fact that residual demand was 10.4 percent lower in the first nine months of 1946 than in the like months of 1945. The stocks held September 30 this year therefore represented 40 days' supply, whereas stocks at the end of September last year were equivalent to only 29 days' supply. Decline in demand has reflected primarily the reductions in consumption by the Navy and the merchant marine.

Comparison of present residual stocks with those held in 1941 is not desirable because in 1941 there was a large surplus, especially in California, and the 84 million barrels or 80 days' supply held September 30, 1941, included much more than necessary working stocks. However, comparison of present stocks with those a year ago also may be misleading, since last year's low inventories led to difficulties in supplying the Navy last spring. Furthermore, residual fuel oil is essentially a by-product of the industry and not an important factor in influencing the oil markets generally or in determining profits. The increases in residual stocks in recent months have been of significance, therefore, mainly in that they have been caused by the sustained large refinery runs and production of gasoline and other profit producing products in volumes involving large accumulation in storage. Stockpiling of gasoline, kerosine, and distillate fuel oil necessarily has involved large production and storing of residual fuel oil, especially with imports of residual running higher than in either 1945 or 1941. It is indicated that the prevailing situation on residual fuel stocks is not within itself a matter for too much concern, in view of all the above considerations and since it is forecast that coming refinery improvements will further reduce residual yields and require increased residual imports in meeting demand.

Refinery Production of Major Products and Percent Yield from Crude Run at U. S. Refineries

Results in September and first 9 months, 1946, compared with those in like periods last year and in 1941. All data from U. S. Bureau of Mines except August and September, 1946, estimated with aid of A.P.I. weekly bulletins.

(THOUSANDS OF BARRELS)

ITEM	1941	1945	1946	% Diff. '41-'46	% Diff. '45-'46
*GASOLINE:					
Production, September	58,988	57,988	63,655	+ 7.9	+ 9.8
(Daily Average)	1,966	1,933	2,122	+ 7.9	+ 9.8
Percent Yield from Crude	44.6	41.3	40.0	.....	.....
Production, January-September	488,953	587,530	548,121	+ 12.1	— 6.7
(Daily Average)	1,791	2,152	2,008	+ 12.1	— 6.7
KEROSINE:					
Production, September	5,949	5,858	7,986	+ 34.2	+ 36.3
(Daily Average)	198	195	266	+ 34.2	+ 3.63
Percent Yield from Crude	4.9	4.6	5.5	.....	.....
Production, January-September	53,106	58,470	79,351	+ 49.4	+ 35.7
(Daily Average)	195	214	291	+ 49.4	+ 35.7
DISTILLATE FUEL OIL:					
Production, September	16,024	19,204	24,219	+ 51.1	+ 26.1
(Daily Average)	534	640	807	+ 51.1	+ 26.1
Percent Yield from Crude	13.2	15.0	16.7	.....	.....
Production, January-September	139,190	189,075	216,133	+ 55.3	+ 14.3
(Daily Average)	510	692	792	+ 55.3	+ 14.3
RESIDUAL FUEL OIL:					
Production, September	28,118	34,183	35,413	+ 25.9	+ 3.6
(Daily Average)	937	1,140	1,180	+ 25.9	+ 3.6
Percent Yield from Crude	23.1	26.7	24.3	.....	.....
Production, January-September	252,331	356,494	330,395	+ 30.9	— 7.2
(Daily Average)	924	1,305	1,210	+ 30.9	— 7.2
LUBRICANTS:					
Production, September	3,427	3,128	3,636	+ 6.1	+ 16.2
(Daily Average)	114	104	121	+ 6.1	+ 16.2
Percent Yield from Crude	2.8	2.4	2.5	.....	.....
Production, January-September	28,884	31,805	32,624	+ 12.9	+ 2.6
(Daily Average)	106	116	120	+ 12.9	+ 2.6

* Production includes straight run, cracked, and natural blended at refineries. Yield indicates percent of crude runs made into straight run and cracked gasoline.

Stocks of Major Petroleum Products Held By Refining Companies in the United States At End of September, Compared with 1941 and 1945

Stocks at refineries, at bulk terminals, in transit, and in pipe lines. Data for 1941 and 1945 from Bureau of Mines monthly reports; for 1946 from weekly reports of American Petroleum Institute.

(THOUSANDS OF BARRELS)

DISTRICT	FINISHED AND UNFINISHED GASOLINE Stocks End of September			KEROSINE Stocks End of September			GASOIL AND DISTILLATE FUEL Stocks End of September			RESIDUAL FUEL OIL Stocks End of September		
	1941	1945	1946	1941	1945	1946	1941	1945	1946	1941	1945	1946
East Coast	19,112	13,282	21,316	3,220	5,707	9,068	19,272	15,138	22,347	9,665	7,875	11,939
Appalachian	3,477	3,595	3,055	302	382	575	801	1,009	743	639	429	559
District No. 1	.....	2,679	2,277	.....	355	488	.....	857	600	.....	213	319
District No. 2	.....	916	778	.....	27	87	.....	152	143	.....	216	240
Indiana, Illinois, Kentucky	15,430	16,326	15,393	1,757	2,709	2,987	6,058	6,368	8,681	4,468	3,285	5,286
Oklahoma, Kansas, Missouri	6,993	6,468	8,303	690	1,052	1,419	2,150	2,827	3,461	2,067	1,258	1,398
Texas Inland	2,944	2,234	2,653	319	401	500	373	515	608	1,584	1,008	736
Texas Gulf	12,061	13,208	12,463	3,490	1,608	3,093	7,324	6,304	8,753	8,837	5,317	7,518
Louisiana Gulf	2,923	3,173	4,209	552	943	1,731	1,777	1,748	2,990	1,944	1,013	1,793
Arkansas and Louisiana Inland	647	2,602	1,466	217	296	413	473	428	475	484	285	232
Rocky Mountain	1,373	1,513	1,458	109	141	224	332	483	639	538	729	823
District No. 3	.....	76	92	.....	26	15	.....	37	48	.....	39	39
District No. 4	.....	1,437	1,366	.....	115	209	.....	446	591	.....	690	784
California	15,003	12,173	15,008	1,006	436	798	12,852	10,239	11,130	53,526	21,623	22,111
Total United States	79,963	74,574	85,324	11,662	13,675	20,808	51,412	45,059	59,827	83,752	42,822	52,395

TWO-WAY RADIO
Speeds Drilling Operations

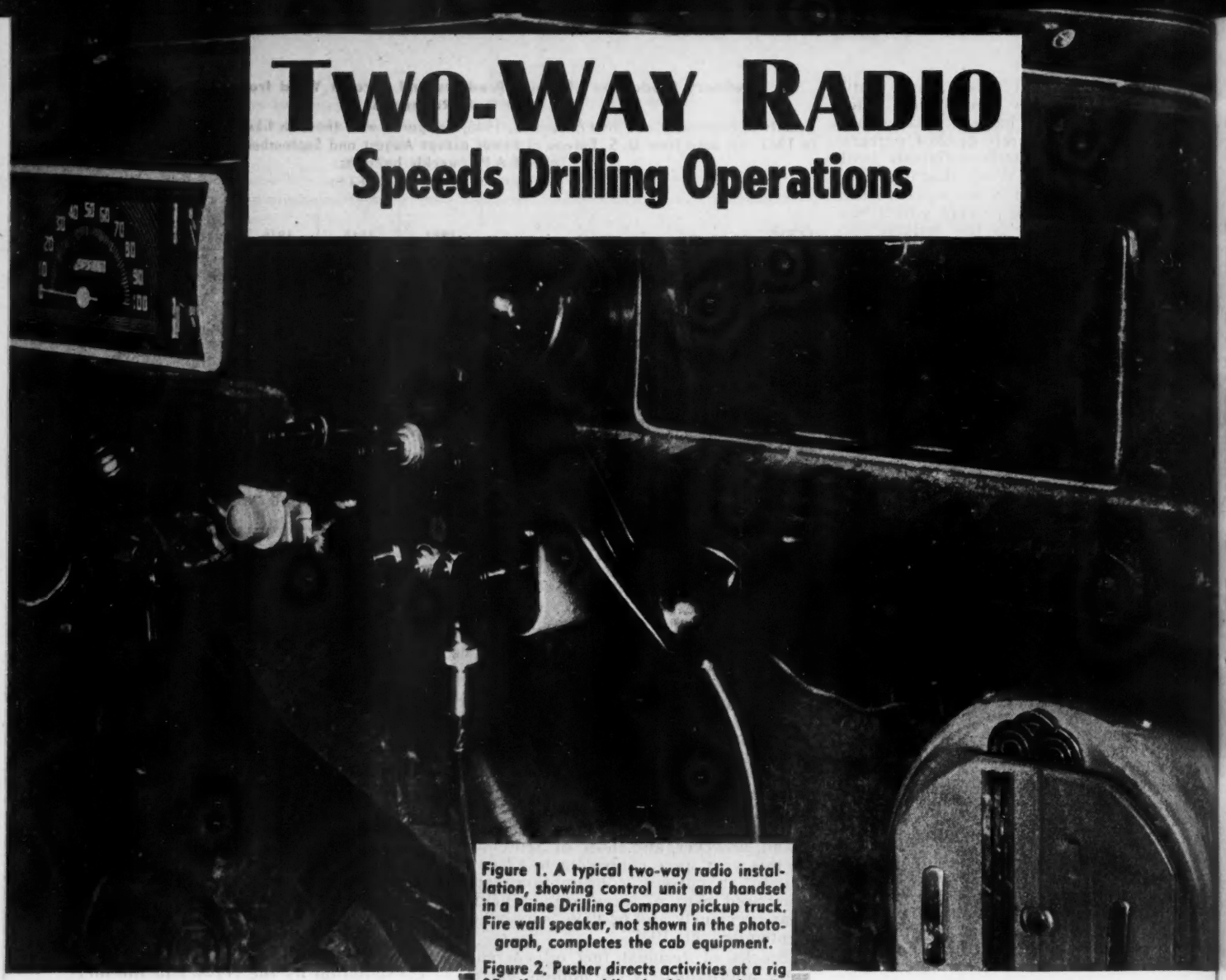


Figure 1. A typical two-way radio installation, showing control unit and handset in a Paine Drilling Company pickup truck. Fire wall speaker, not shown in the photograph, completes the cab equipment.

Figure 2. Pusher directs activities at a rig 35 miles away while checking another rig close at hand. Whip antenna used on both pickup trucks and cars is shown on the back of the truck cab. Spring at base of whip allows the antenna to bend while passing under trees and obstructions.

By WILLIAM P. STERNE

Staff Writer

A UNIQUE system wherein two-way radios are installed on drilling rigs and in pick-up "pusher's" trucks or executive field cars so that crews are in constant touch with other field men, has been instituted by the Paine Drilling Company of Dallas. The system has resulted in preventing costly shutdowns, and has saved a great amount of labor and expense.

In a four-month trial period, the time and effort saved by the use of radio communication has paid back handsomely toward the cost of the equipment.

Installed on both rigs and in pick-up trucks or field cars, the radios enable the crews on rigs to prevent costly shutdowns while otherwise having to wait for a "pusher" to reach location, or be sent to a distant town for needed materials.

70-Mile Range

At the typical Paine rig, the driller merely picks up the handset, which resembles a telephone, pushes a button, and is in immediate contact with the person desired. The radios have a range of approximately 70 miles, and the sets have reportedly cut down the driving time of pushers by at least 40 percent—no small item when one pusher is trying to cover several widely-dispersed rigs.

Too, receivers in homes of pushers enable them to transact business at any time, and the exact status concerning the progress of every well can be relayed to them instantly under any conditions.

Paine executives began discussing the possibility of radio months ago; however, lack of available equipment and delays necessitated by the processing of applications by the Federal Communications Commission, slowed up plans. Still, the delays provided ample opportunity for officials to decide on the type of radio equipment best suited for their needs.

The sets used are of high-frequency FM, weighing approximately 60 pounds per unit. Frequency modulation proved itself during the war to be one of the best means for mobile radio communication, and though FM is considered as a "line-of-sight" broadcasting (theoreticaly FM will not pass beyond the horizon) its signals possess unusual clarity and can be "read" with no trouble. Atmospheric static and man-made interference from generators, motors, etc., affect FM reception to a remarkably small degree, thus adding to its attractiveness as an industrial aid. The model accepted by Paine is a rugged instrument, originally designed for combat and stands up well under oil field usage.

Sets installed on rigs and in trucks operate from the familiar six-volt storage battery. No additional electrical

equipment is required for the trucks, but when the set is in continuous use it has been found advantageous to adjust the generator to provide a higher rate of charge to compensate for the constant stand-by drain of eight amperes.

On rigs, a heavy-duty battery with an operating life of 30 hours without charge is provided. A standard six-volt generator, belted to the hub of the drilling motor, is set up to charge the batteries of the rig installations. Because transmission requires a power of 26 amperes, it has been found advisable to avoid long continuous transmissions, though any number of short messages may be transmitted without undue draining of the power supply.

Simple In Operation

The sets are simple in operation, with no complicated meters requiring attention. Only control is for volume, the pre-tuning being controlled by crystals, thus doing away with dial tuning. This pre-tuning also insures that all sets, both transmitters and receivers, are always on the same frequency.

Installations used by Paine operate on an FCC-assigned wave length of 37.14 megacycles.

Although the range of sets varies somewhat due to ground conditions, the following distances are about average: rig to rig, 70 miles; rig to car, or vice versa, about 50 miles; car to car, approximately 30 miles. Differences in reception and transmission range, though with the same equipment, are caused by the type of antenna used and its height above the ground. Cars and trucks employ the flexible steel whip-type antenna, while the station-type antenna used on rigs are mounted on gin poles at the top of the derrick. As a general rule, the higher the antenna, the greater the reception and transmission range.

The stations used by Paine are divided into two categories, mobile and portable units. The mobile units are installed on trucks. Three of the mobile units share the same call-letter, which is KBKQ. An additional mobile unit, KHQT, has also been licensed. Three of the portable units are in operation in North Texas. These stations use the call-letters K B K H, K B K M, and KBKN. Under the latest FCC regulations, no licenses are required for the operators, but transmitters must be inspected regularly by an operator having at least a second-class license.

One of the conditions under which this type of installation is permitted by the FCC reads that "stations are licensed to transmit only essential communications relating to the oil well drilling industry." Permits are effective for a period of one year, but upon application are renewable.

Theoretically, FM signals will not pass beyond the horizon, but due to a little-understood phenomena called a "skip-wave," FM signals can sometimes be picked up at comparatively great distances. Since it is a truism in FM broadcasting that whenever one can receive a distant signal, one can also transmit to that station originating the signal, things can become slightly confusing to novice radio operators on a drilling rig.

For instance, the crew of one Paine Drilling Company rig, working near Jacksboro, Texas, was startled by a voice out of the loud speaker asking for "Ed" to send a cementing truck to the location. Since there was an Ed in the Paine Company organization, all those at the rig turned to him for an explanation. Disclaiming all knowledge of the request, he and the rest of the crew were really amazed to learn, when the station signed off, that the "Ed" the voice on the radio wanted was a member of a Humble Oil & Refining Company rig working near Talahassee, Fla.

Paine men could have communicated with the Humble rig, but this type of communication is barred by FCC regulations.

The same type of experience was encountered by a Paine executive while driving his automobile near Dallas recently. He was surprised to pick up the transmission of a short-wave FM station working somewhere in California.

But despite these "skip waves," Paine executives and employes have highly approved the use of radio communication in their operations. The use of radio, especially in connection with remote wildcats, permits a peak of efficiency and economy previously unknown in the drilling industry.

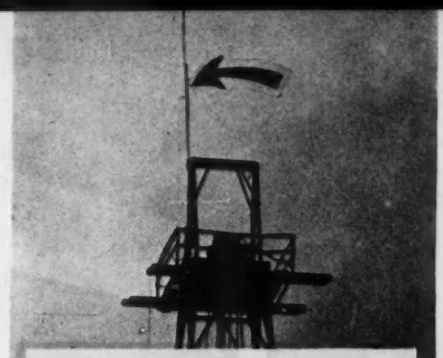
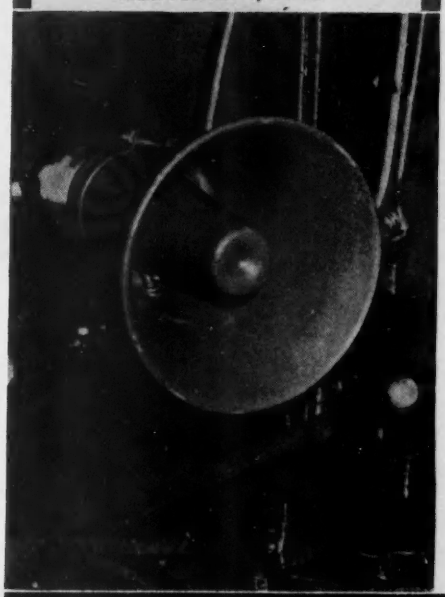


Figure 3. Pusher's message is received through antenna atop the rig, mounted on gin pole of the derrick. Although the rig is 35 miles from the pusher, crew can tell him the status of the well or notify him of any materials needed. This is the first FM radio-equipped rig, on a location near Jacksboro, Texas.



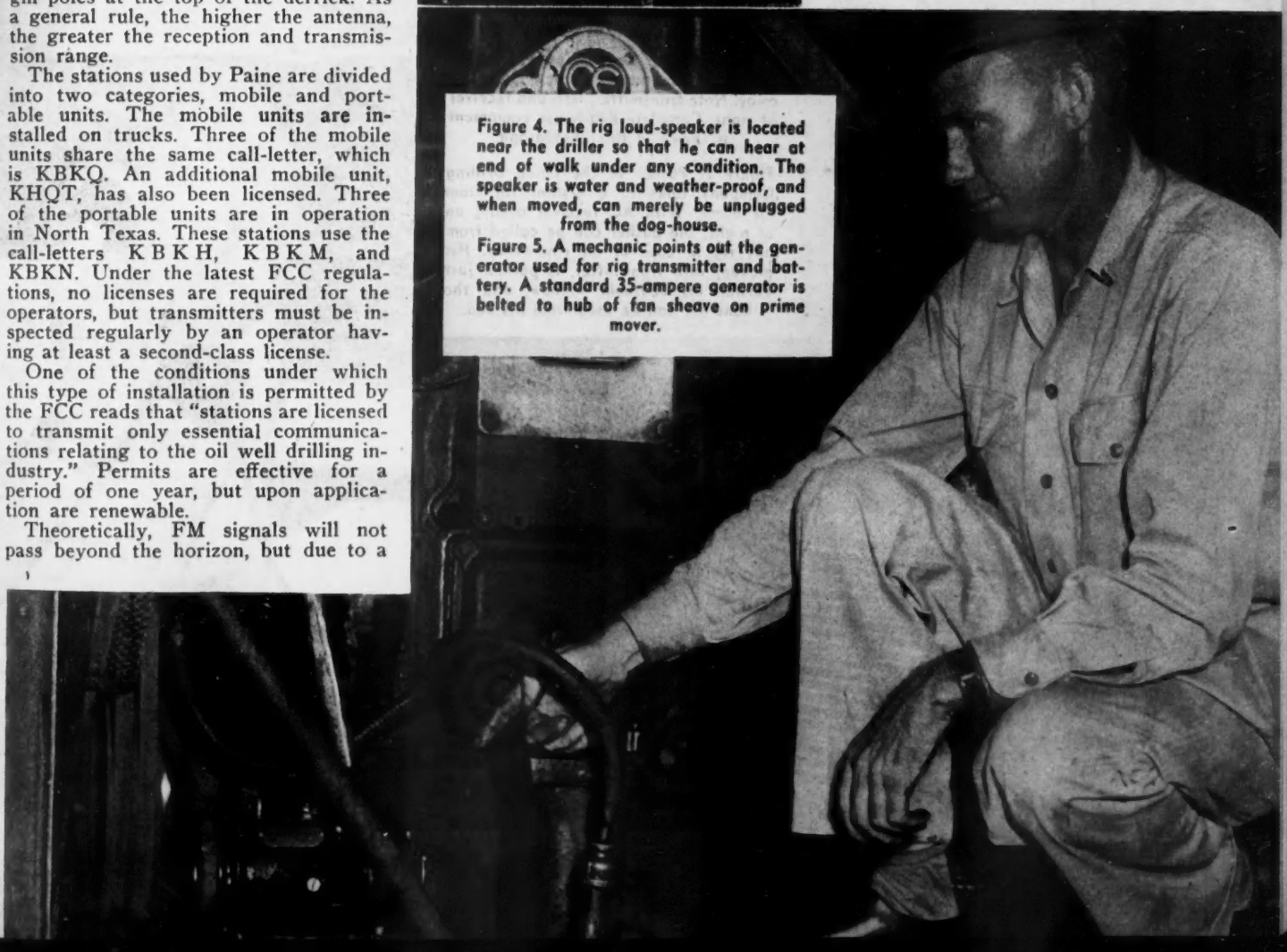


Figure 4. The rig loud-speaker is located near the driller so that he can hear at end of walk under any condition. The speaker is water and weather-proof, and when moved, can merely be unplugged from the dog-house.

Figure 5. A mechanic points out the generator used for rig transmitter and battery. A standard 35-ampere generator is belted to hub of fan sheave on prime mover.

Figure 6. Driller answers pusher's radio call, from the pusher's truck, 35 miles away. Note transmitter, left, and receiver at right. Complete dog-house equipment is shown in this photograph.

Figure 7. Pusher of the Paine Drilling Company talks to a distant rig from his home. With AC receiver always on at night, the pusher can be called from any rig in case of an emergency. His pickup, with transmitter, is parked just outside his bedroom window, and the hand-set can be used from his bed.

Pennsylvania

OIL AREAS FACE Critical Period

By J. PAUL JONES
Director of Production, Pennsylvania Grade Crude Oil Association

PRODUCTION of Pennsylvania grade crude declined an average of 8.8 percent between 1942-45 and the trend is expected to continue unless new discoveries bolster reserves and secondary-recovery projects arrest the drop.

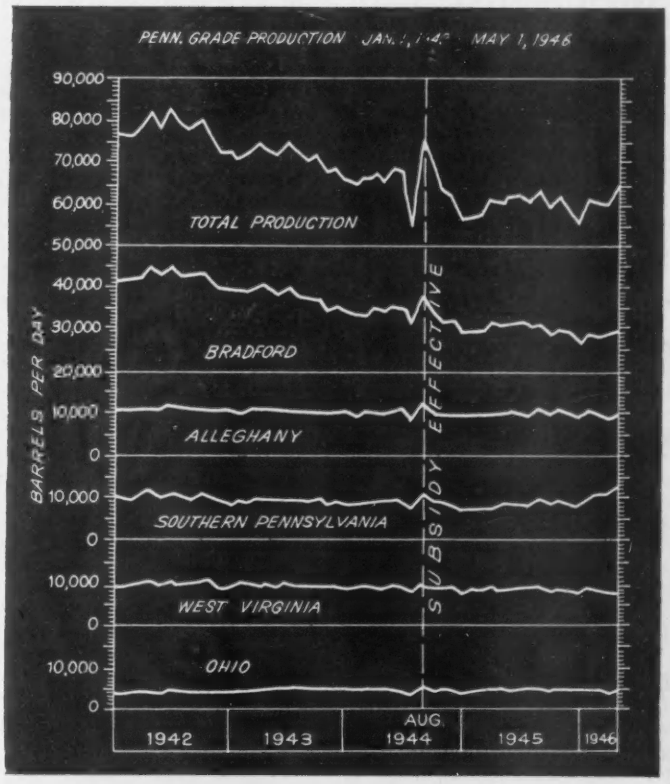
Pennsylvania grade crude is produced in the Bradford and Alleghany districts, in Southern Pennsylvania, West Virginia and Ohio, and is noted for its exceptional qualities, especially as a lubricant. Production of this type of crude is expected to average about 60,000 barrels per day during the current year. Based on the trend during the 1942-45 period and if the rate of decline continues, production is expected to drop to 43,000 barrels per day by 1950.

Producers of Pennsylvania grade crude benefitted greatly from the subsidy which halted the decline in all sections of the area after August, 1944. The effect of this price increase has not entirely spent itself. Secondary recovery takes time not only to develop but to react. Materials and equipment have been hard to procure, skilled labor scarce, and common labor has been inefficient; all of which has had its effect on production.

Extensive work done in the Middle District during 1943-44 is just beginning to show up in increased production. Other large development projects are under way in this area which will have a material effect on checking the decline, and will in all probability account for an appreciable increase for 1946 in this area.

The decline in the Bradford field over the last three years has averaged about 11 1/3 percent. This section in the past has been responsible for most of the decline of Pennsylvania grade production. Here, too, one can expect a reduction in the decline rate over the immediate preceding years. Considerable development work started during the war has not been put into operation. Shortage of materials has been the contributing factor for this delay. One representative producer in the area reports an average delay of eight to nine months.

In all sections of the area the decline rate is less for 1945 than for previous years. Ohio shows a slight increase in 1945 over 1944. This can be attributed mostly to successful exploratory work. The decline in West Virginia is normal and continues a trend that has existed for some time.



Economic Limit Reached

Many properties and wells are now bordering upon their economic limit, reached more by increased operating cost than because of any marked decline in production. Material shortages have made equipment in the marginal well more valuable as junk or second-hand material than as equipment. Wages which are the biggest factor in the high operating cost of the marginal wells obviously cannot be cut and may increase. The only resort left for the producer is to cut the operating personnel. This action, coupled with the increased value of second-hand equipment can very easily result in the abandonment of numerous wells. How this would affect overall production is problematical. Production from these wells and leases is very small, but the aggregate can amount to considerable oil. However, the return of the veteran and the war worker to the farm may have a dampening influence on this trend, especially in the lower area.

There is approximately a third more refining capacity in the area than production to supply it. Research of the type being done by the Pennsylvania Grade Crude Oil Association will not alone bring back to past levels the necessary supply of crude. The problem is far broader and involves the necessity of finding new Pennsylvania grade production. Association research, by increasing the efficiency of secondary recovery, will prolong the life of present and future wells and will ultimately recover more residual reserve. By increasing the productive life of the wells, it should also aid in preventing premature abandonments. Some feel that the research work should be limited entirely to the problem of recovering the 25-30 percent saturation being left in the sands as an end result of the present known practices. Others feel that ways and means must be found to keep wells in operation for an extended time or they will not be available for production purposes when approved secondary recovery practices are found. It is wishful thinking that some remarkable discovery will be found that will increase Pennsylvania grade production overnight; but it is reasonable to hope that a combination of a lot of small improvements such as finding a really successful plugging agent and the prevention of corrosion will permit wells to be operated economically longer, thus arresting decline and increasing ultimate recovery. In the writer's opinion, the work already done in the research department and by independent producers in the area has amply paid for itself

in recovered oil that otherwise would have been lost.

The answer to bringing Pennsylvania grade production back to prewar level lies in the need for exploratory work. There is no assurance that deeper production ever will be found, but its search is certainly warranted. It probably will be slow in coming, since only large companies can afford to drill 8000 to 10,000-foot wells. It is in the realm of possibility that the first well might give the answer. Then again it might take 25 to 50 costing from $50,000 to $150,000 each. The state of Pennsylvania has appropriated $50,000, part of which is to be used by the Geologic Survey to clarify deeper production possibilities. New York and Ohio also have recently taken steps to expand their geological work. These detailed geological surveys are a prerequisite to exploratory work.

In a letter recently received from Dr. Charles R. Fettke, Carnegie Institute of Technology, he states that it is his opinion that the upper Devonian belt from which all Pennsylvania grade crude has come not only offers the best possibility for secondary recovery but includes the area in which there is the greatest likelihood of finding undiscovered pools which may still exist in the area.

Promising Area

He further states that the geologic work in Pennsylvania has concentrated on secondary recovery possibilities, and quadrangles covered thus far represent intensively drilled areas. Other areas in the state not as yet covered present better opportunities for exploratory work. In pointing out that sufficient data is not available as yet to present statistical information on the amount of acreage and locations that warrant exploratory work in the Upper Devonian sands, Dr. Fettke explains as follows:

"The survey has published reports on the Bradford quadrangle (Bulletin M21, supplemented by Progress Report 125 on Lafayette Township); The Tidioute, Titusville, Franklin, and Oil City quadrangles (Progress Report 118 and Bulletins M22, M24, and the Franklin and Oil City quadrangles); and the Hilliards quadrangle (Progress Report 122, supplemented by Special Bulletin 3 giving property line maps). Property line maps for the Titusville quadrangle will be available soon. These reports should be studied in connection with exploratory drilling in the areas covered. While Special Bulletin 1, dealing with the oil bearing sands of Southwestern Pennsylvania, contains much information that is helpful in planning exploratory work in that area, it does not go into sufficient detail to select particular areas for further drilling.

"In the Kinzua quadrangle, for which the field work has been completed and a map showing undrilled areas published, the Clarendon sand zone offers some possibilities in the northeastern part of the quadrangle. It also appears that the Deer Lick-Sliverville horizon is worthy of further testing in the southern part of the quadrangle as many of the wells shown on the map did not penetrate this horizon. Specific areas cannot be outlined until the analysis of all the data has been completed, but I shall be glad to discuss the matter with anyone contemplating work in this area.

In the Kane quadrangle, south of the part for which the field work has been completed, it looks now as though the Haskell sand is worthy of further exploration along the trend indicated by the recent developments near Coryville, in the Guffey area and in the northeastern part of the Kane quadrangle. I am planning on looking into this further during the coming summer. A map showing undrilled areas in the Warren quadrangle will be released shortly. Wilbur H. Seifert has the data on the area. Robert S. Stephenson has started work on the detailed survey of the oil fields in Southwestern Pennsylvania and should be consulted by those contemplating work in the area. . . ."

Dr. Fettke's conclusions are that the best places to look for new oil pools in the Upper Devonian and higher sands are in the belt outlined by the distribution of present known oil pools. While there probably are a few undiscovered Music Mountains left in this belt, pools of the magnitude of the recently discovered Haskill sand pool near Coryville and the small Gordon sand pool northeast of Washington, Penn., are more representative of what may be hoped for in this area.

Deeper Prospects

In regard to deeper horizons, Dr. Fettke adds that what has been stated thus far "applies only to the Upper Devonian and higher sands. Although there has been considerable exploration of deeper sands, thus far no oil pool of commercial size has been discovered in these sands in Pennsylvania. A small show of oil was encountered in the Oriskany in two wells drilled in the Bradford area and better shows in several wells in Crawford County, but the large number of wells drilled through the Oriskany do not afford much encouragement that any oil pools of appreciable size exist in the Oriskany in Pennsylvania. Only one well (Crawford County) has had a good show of oil in the Lockport dolomite (Newburg) but this was not Pennsylvania grade, and only one small commercial gas well (Mercer County) has been developed in this horizon to date. Although a considerable number of wells have been drilled through the Medina in Northwestern Pennsylvania, the results have been negative as far as the occurrence of oil is concerned.

"If appreciable reserves of oil are present in deeper sands in Pennsylvania, it looks now that these will have to be sought for in still deeper sands, for which we have little information as yet. The Oswego formation, which passes from a sandy continental facies to a gray marine shale somewhere between its outcrop in Central Pennsylvania and the wells which have penetrated its horizon in Northwestern Pennsylvania, offers some possibilities along a belt representing the old shore line where the transition occurs. Just where this occurs will require further deep testing. The horizon is 1000 feet below the Medina in the Hockenberry well in Northwestern Butler County, which is west of the transition belt. Still deeper, the Lower Ordovician and the Upper Cambrian dolomites with their included sandy zones offer possibilities. Top of this dolomitic zone was encountered at 9553 feet in the Hockenberry well and the first sandy bed in it at a depth of 10,074 feet."

Dr. Fettke is now engaged in making a study of these deeper horizons in the light of data now available from drilling in Northwestern Pannsylvania and adjacent territory.

TABLE 1

Percentage Decline Over Previous Year From 1943-1945

	1943 Over '42	1944 Over '43	1945 Over '44
Pa. Grade Area	8.9%	9.8%	7.7%
Bradford Field	11.4%	11.4%	11.0%
Allegany	5.3%	4.9%	3.1%
S. Penna.	8.8%	9.3%	5.6%
West Virginia	7.3%	8.7%	5.8%
Ohio	+4.8%	11.0%	+.003%

Natural Decline

The present decline in Pennsylvania grade crude oil is natural. A study of production curves will show a close relationship with well completions. High production rates in Bradford in 1942 and in the Middle District now are the result of an intensive drilling campaign. There is a limit to the number of wells that can be drilled on any productive acre; and in the water-flood areas, which account for the largest percentage of Pennsylvania grade production, the best acres have been developed. However, today the producer is developing acreage in this area that a few years ago was considered worthless. More efficient methods and better operating practices have made this marginal area productive. However, until new fields or deeper production is found we must expect a continued decline in daily production with the hope that it can be arrested by production research before any existing markets are lost.

In West Virginia, water flooding is quite feasible, especially in some of the shallower pools. However, state laws prohibit this type of secondary recovery except in an experimental way. Until these laws have changed, not much activity can be expected in this area. Steps to amend the laws should be initiated by the producers within the state. The offices of this Association should and will be made available in assisting in any way possible.

Consideration should also be given by the industry to the passage of adequate conservation laws which would govern the development and production of oil from newly discovered horizons if and when such events occur. In the event of new discoveries, there exist today, especially in Pennsylvania and New York, no regulatory bodies or conservation laws that will control production of flush oil and assure an efficient and economic development. We have only to look at Music Mountain to understand the waste and inefficiency of uncontrolled production.

Unitized development as related to secondary recovery is a prerequisite to expanded activities in the lower area. This is especially true in the deeper sands where under present methods of operation redrilling is prohibited because of the economic factors involved. Sand conditions make controls difficult and operators are hesitant to initiate development work until they have some assurance that their effort and capital will not be expended on their neighbor's property. Unit operations seem to be the only answer to this problem.

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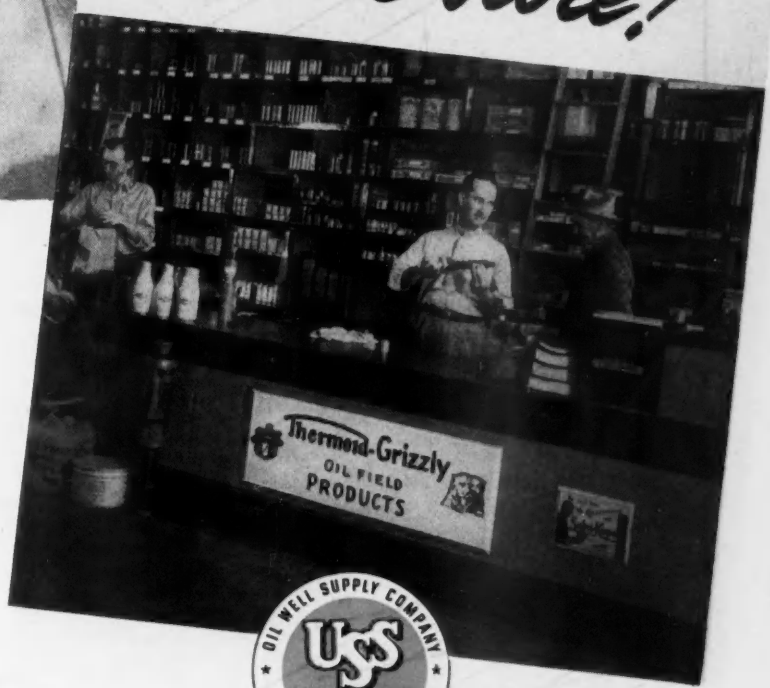

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UNITED STATES STEEL

"OILWELL"

Temperature

By HUBERT GUYOD,
Well Logging Consultant
Houston

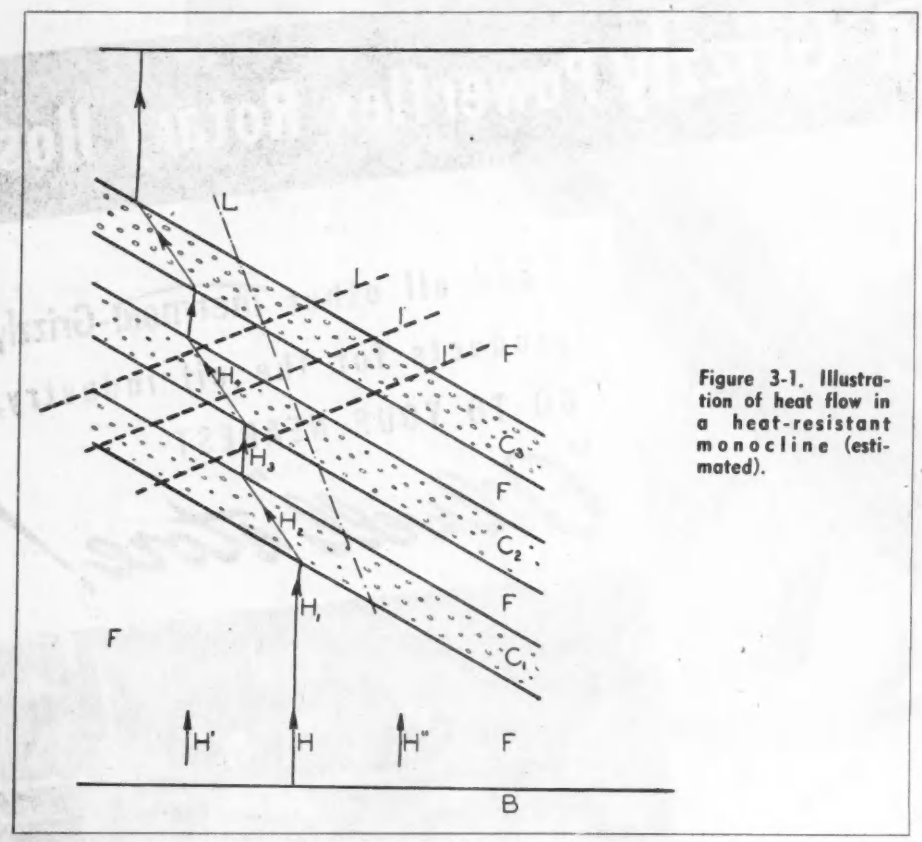

Figure 3-1. Illustration of heat flow in a heat-resistant monocline (estimated).

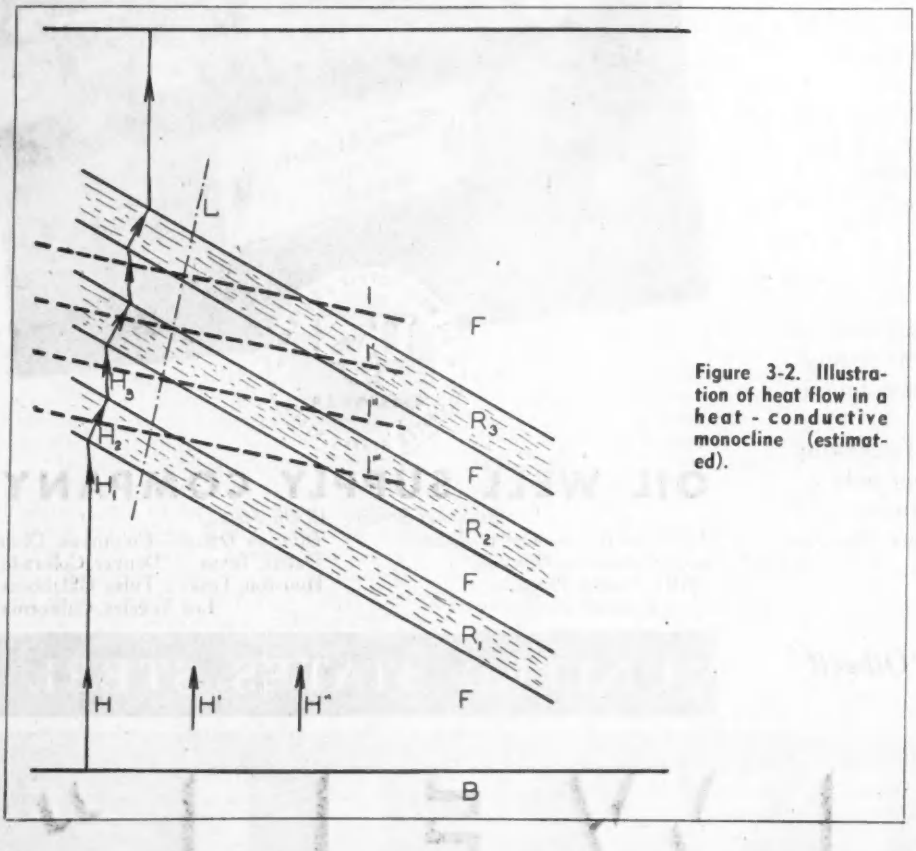

Figure 3-2. Illustration of heat flow in a heat - conductive monocline (estimated).

A GOOD procedure for visualizing the effect of dip on the temperature distribution in the ground is to use a simplified graphical method. This is based on the fact that isothermal surfaces are at right angles to the direction of heat flow.

While isotherms are usually difficult to determine directly by a graphical method, the flow lines are much easier to trace approximately by thinking in terms of fluid flow or electric flow. From the flow pattern thus obtained, the main isotherm direction can be readily obtained. This procedure will be used to investigate the two following types of monoclinal structures:

1. A formation F (see Figure 3-1) containing a few resistant parallel and tilted beds R_1, R_2 and R_3. These beds are assumed to have the same thickness T and their interval equals T also, for simplicity. F is, for instance, ten times more conductive than beds R. This conductivity ratio is abnormally high and probably never found in practice, but it has been selected in order to more clearly understand how the heat flows in this type of monocline.
2. A geometrically identical monocline in which the tilted beds, C_1, C_2 and C_3 are ten times as conductive as formation F (Figure 3-2).

Resistant Monocline

Referring to Figure 3-1, the flow lines coming from the horizontal basement rock B are shown as the vertical arrows H, H′, H″ etc. When one of these lines, H for example, nears resistant bed R_1 it is slightly distorted to the left (arrow H_1). This is analogous to the electrical current distortion (dodging effect) observed in electrical logging near the boundary of two formations having different resistivities.[1]

Inside resistant bed R_1, the flow seeks the path of least resistance, which evidently is the shortest distance between the two faces of the resistant bed; the flow line is therefore appreciably shifted to the right (arrow H_2). After bed R_1 is crossed, the heat resumes approximately its normal direction of travel, i.e., it flows vertically (arrow H_3). Then when the flow line crosses beds R_2 and R_3 its direction is exactly as it was in bed R_1.

It is evident from an examination of the figure that the presence of the resistant beds results in a shifting to the right of the mean line L of heat flow. The general direction of the isogeotherms, which is perpendicular to the general direction of flow, is therefore tilted also, as shown by lines I, I′, I″ etc. The direction of the isogeotherms is therefore the same as that of the formation, but the slope angle of the iso-

This is the third of a series of seven articles, based upon research work sponsored by Halliburton Oil Well Cementing Company. Parts 1 and 2 appeared in THE OIL WEEKLY of October 21 and 28, respectively.

WELL LOGGING

Part 3

Temperature Distribution in the Ground

TEMPERATURE distribution in the ground is controlled primarily by the heat conductivity and by the geometry of the formations. The influence of these two factors on a few typical cases is explained in this article.

geotherms is less than the angle of formation dip.

Very far from beds R, the flow lines have almost their normal direction of travel and, in these areas, the isogeotherms are approximately horizontal.

The foregoing result has been verified by experimenting on electrolytic scale models. Figure 3-3, for example, represents a formation similar to that of Figure 3-1. The dash-lines are the equipotential lines actually determined on the model. As pointed out in a preceding article (Part 1), these lines simulate the isogeotherms of Figure 3-1. Their general direction is found to be as described above. The temperature interval between the isogeotherms shown on this figure is constant.

Conductive Monocline

If formation F contains conductive beds instead of resistant beds, the general direction of the isogeotherms is different from that found above.

Referring to Figure 3-2, C_1, C_2, and C_3 are beds ten times as conductive as formation F. The heat flow coming from the horizontal basement rock B follows vertical paths until it nears bed C_1, at which time it is slightly deflected to the right (attracting effect). When the flow line enters bed C_1, which is much more conductive than F, it has a tendency to remain in C_1 (path of least resistance): therefore it travels as shown by arrow H_2, i.e., it is considerably deflected to the left. The end of the heat travel is self-explanatory and it is represented by arrows H_3, H_4, etc.

In the region containing beds C, the general direction L of the heat flow is tilted to the left. The mean direction of the isogeotherms—which is perpendicular to L—is therefore as shown by lines I, I′, I″, etc. It dips in a direction opposite to that of the monocline.

This behavior has been verified on the electrolytic model shown on Figure 3-4 where the dash lines simulate the isogeotherms. The temperature interval between them is constant, except for the line marked (1).

From the foregoing it is easy to understand that the tilting of isogeotherms is great when the conductivity ratio of the sediments involved is great, and small when this ratio is small. This tilting depends also upon the thickness of formation F above and below the layers R or C, as well as upon the thickness and distance of these layers which, in practice, vary from bed to bed. Finally, the angle of formation dip has to be considered also.

Influence of Dip Angle

In horizontal or nearly horizontal formations the isogeotherms are not appreciably warped, i. e. they are nearly horizontal. The same result obtains when the sediments are vertical or nearly so. The maximum isotherm dip is

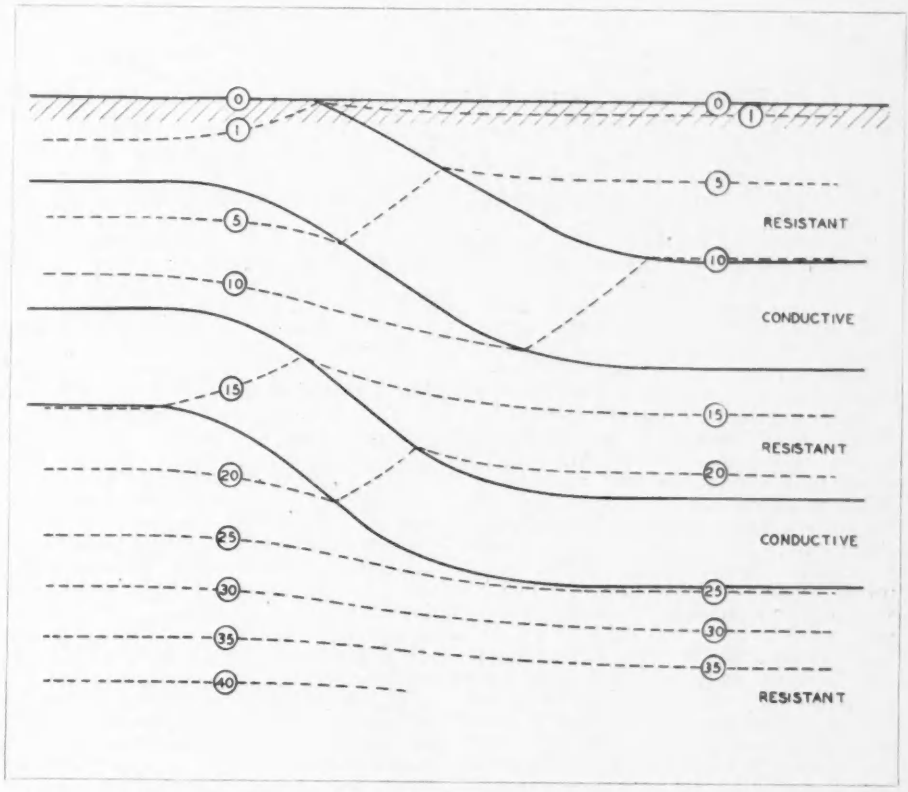

Figure 3-3. Isogeotherms in the vicinity of a heat-conductive monocline (scale model data).

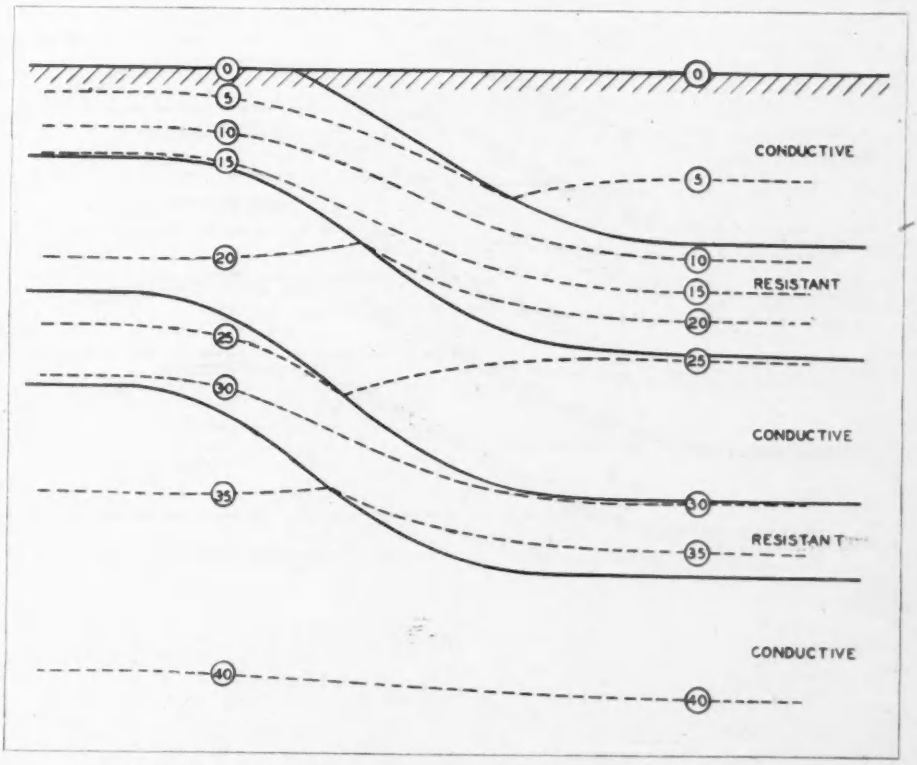

Figure 3-4. Isogeotherms in the vicinity of a heat-resistant monocline.

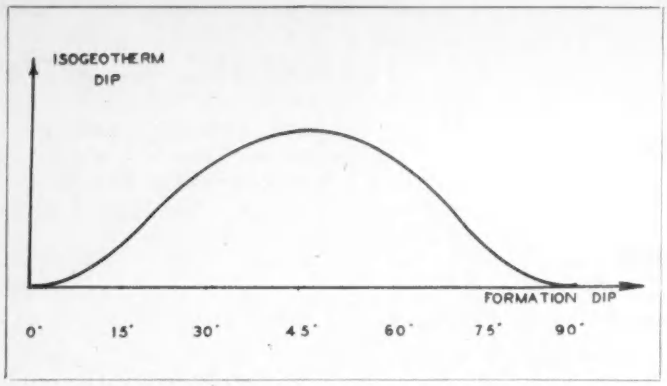

Figure 3-5. Relation between isogeotherm dip and formation dip (estimated).

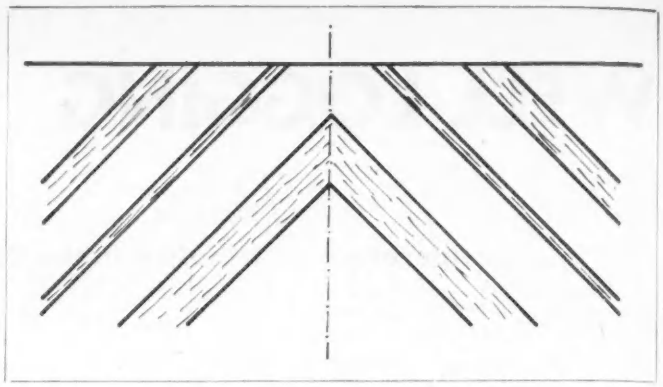

Figure 3-6. Anticline as a combination of two monoclines.

observed when the formation dip is in the neighborhood of 45° (see Figure 3-5), all other factors remaining the same.

The preceding figures refer to extremely large conductivity ratios (ten to one), for which a considerable distortion of the isogeotherms would exist. The actual ratios are much smaller. For example, for an alternation of shales and sands the ratio would be in the neighborhood of two, for which the mean isogeotherm distortion would be smaller than shown on the preceding figures, especially in sections where these two formations are roughly in equal amounts. On the other hand, if the section being investigated comprises shales and limes, the distortion will be greater (conductivity ratio: about three) especially if the angle of formation dip is comprised between 30 and 60°.

To summarize, the exact isogeothermal pattern in monoclinal structures is usually difficult to analyze because of the many factors involved, and a complete discussion of the problem cannot be offered here. For our purpose it will be sufficient to remember the two following results:

1. The isogeotherms can be either raised or lowered in the direction of formation dip, according to conditions.
2. The angle of isogeotherm dip is relatively small and is usually less than that caused by shallow salt domes, salt anticlines or other shallow intrusions. It is generally dominated by the effect of the latter factors. However, in the case of deep-seated intrusions, the influence of formation dip is frequently preponderant.

Effect of Anisotropy

Many sediments are anisotropic: their heat conductivity—as well as their permeability and their electrical conductivity—is generally greater parallel to the strata than perpendicular thereto.

An anisotropic formation is actually an alternation of extremely thin beds having different heat conductivities. The effect of an anisotropic bed upon the temperature distribution in the ground is therefore identical, except for the scale, to the effect of an alternation of thick beds, such as those illustrated on Figures 3-1 and 3-2.

Shales are much more anisotropic than almost any other sediment and, as a first approximation, it can usually be assumed that all sediments, except shales, are not anisotropic.

It has been seen that shales are less conductive to heat than the other formations. Therefore, a tilted section comprising an anisotropic shale situated within a substantially isotropic formation is basically similar to the media shown on Figure 3-1.

Anticlines

An anticline can be considered, in first approximation, as being an association of two monoclines which are symmetrical about a vertical plane (Figure 3-6). The temperature distribution in such a formation is readily obtained by combining the isogeotherms of the two component structures.

Figures 3-7 and 3-8, for example, represent the temperature distribution in two typical anticlines.

All that has been said regarding monoclines applies evidently to anticlines. In particular, the isogeotherms are either raised near the axis of the

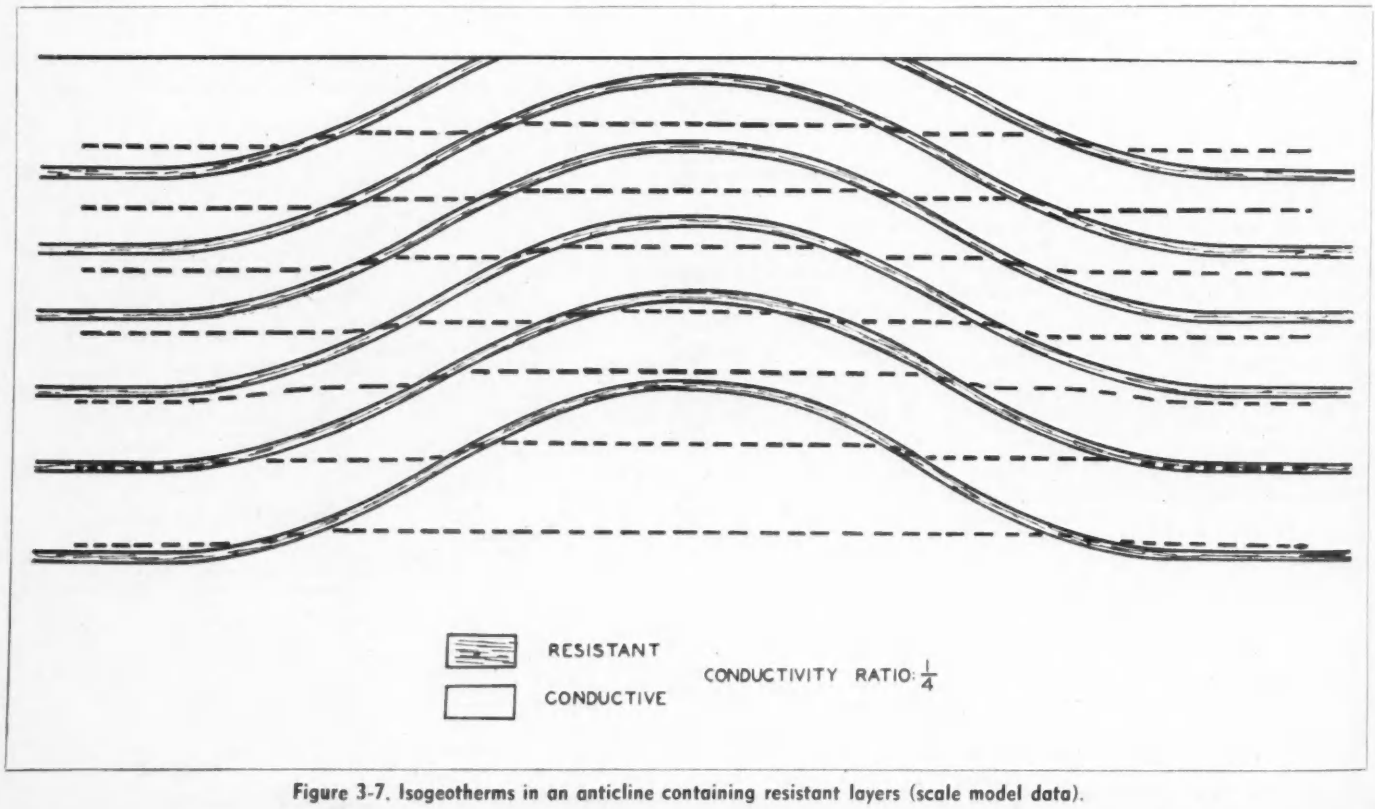

Figure 3-7. Isogeotherms in an anticline containing resistant layers (scale model data).

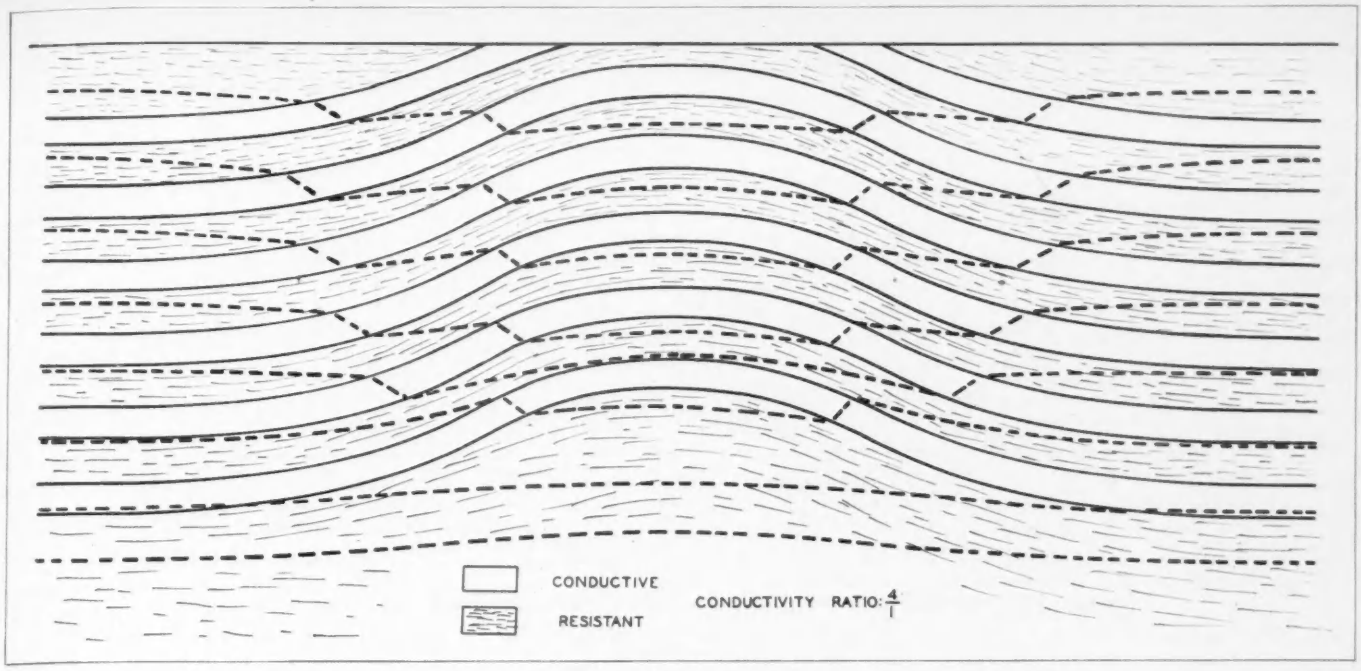

Figure 3-8. Isogeotherms in an anticline containing conductive layers (scale model data).

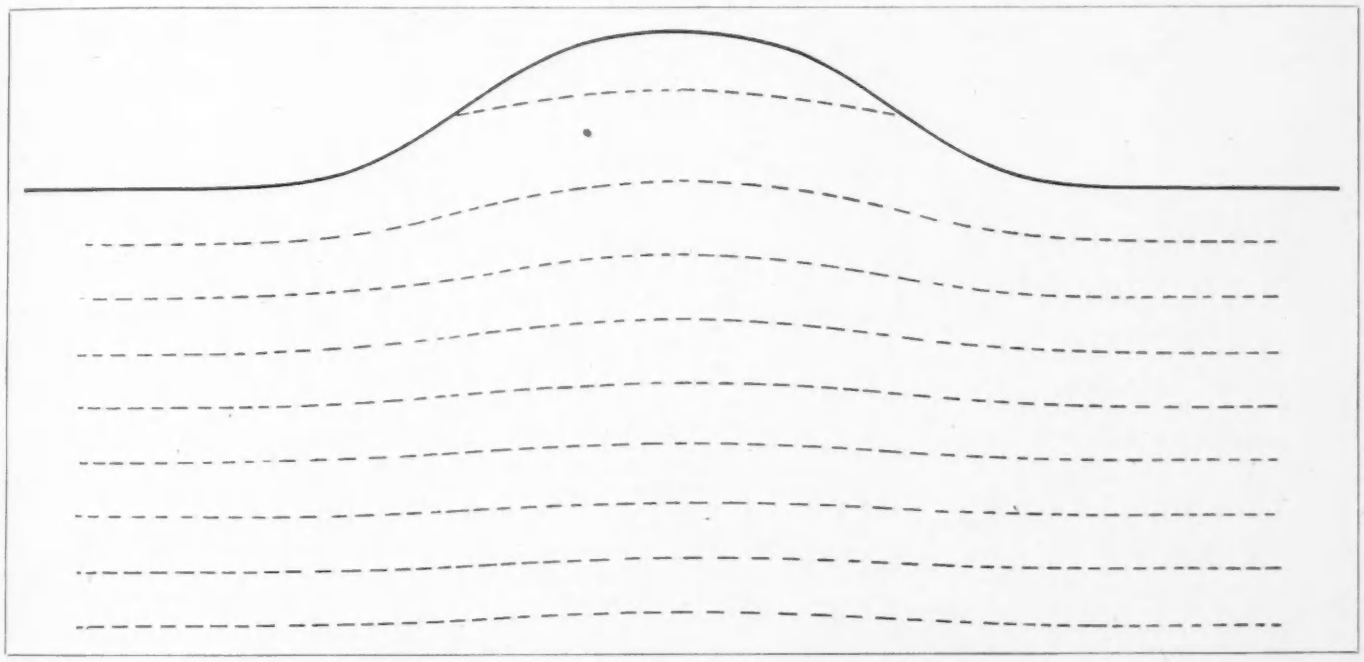

Figure 3-9. Isogeotherms in the vicinity of a topographic high (estimated).

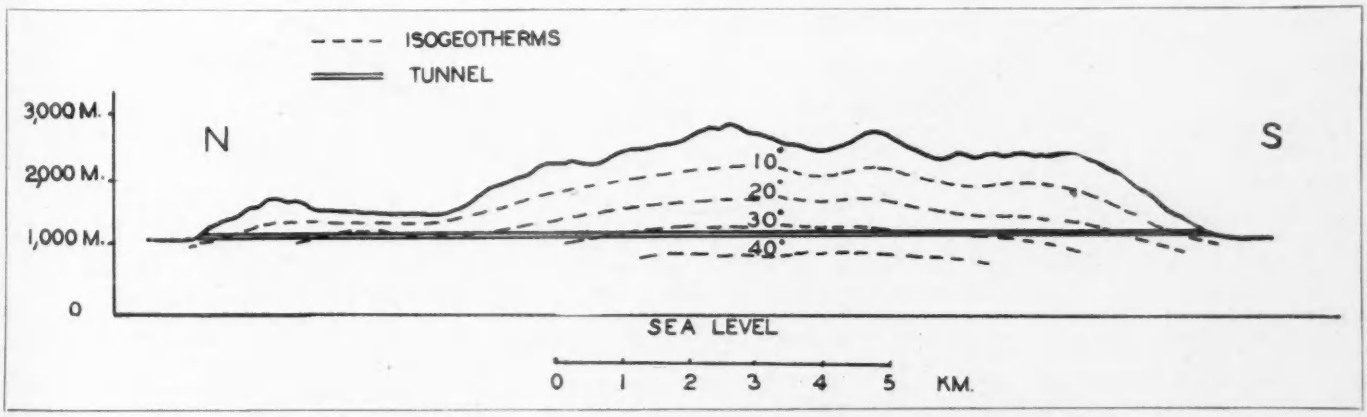

Figure 3-10. Isogeotherms in the mountain traversed in Saint-Gothard tunnel (data extrapolated).
After Albert Heim, "Der Mechanismus der Gebirgsbildung," 1878.

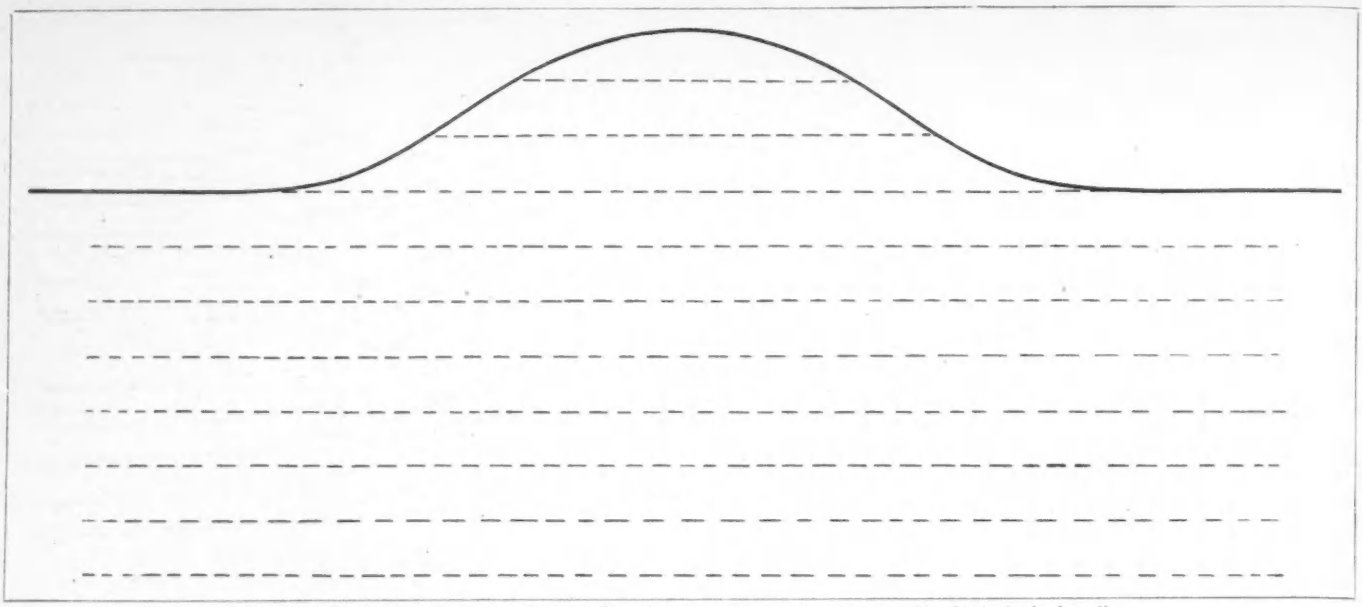

Figure 3-11. Isogeotherms in the vicinity of a very conductive topographic high (calculated).

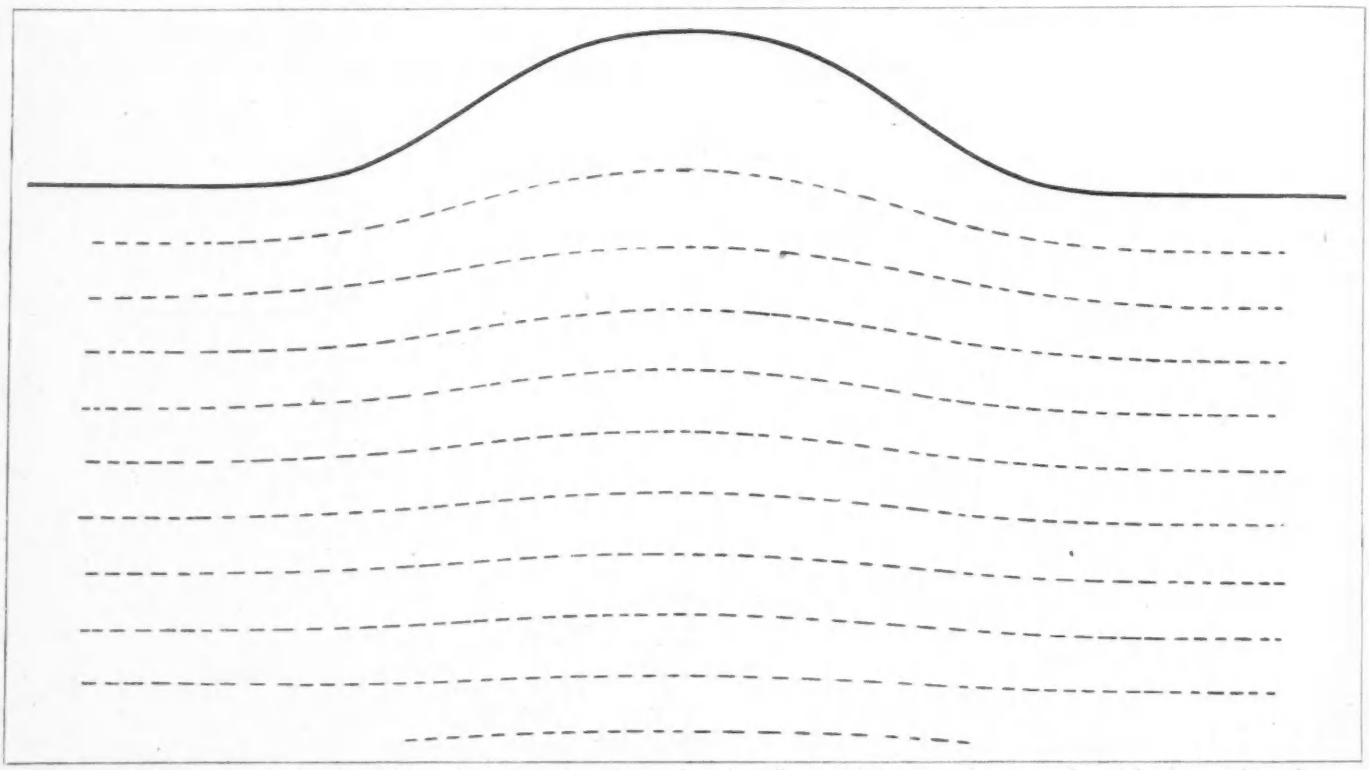

Figure 3-12. Isogeotherms in the vicinity of a topograhpic high when the influence of the atmosphere is neglected (scale model data).

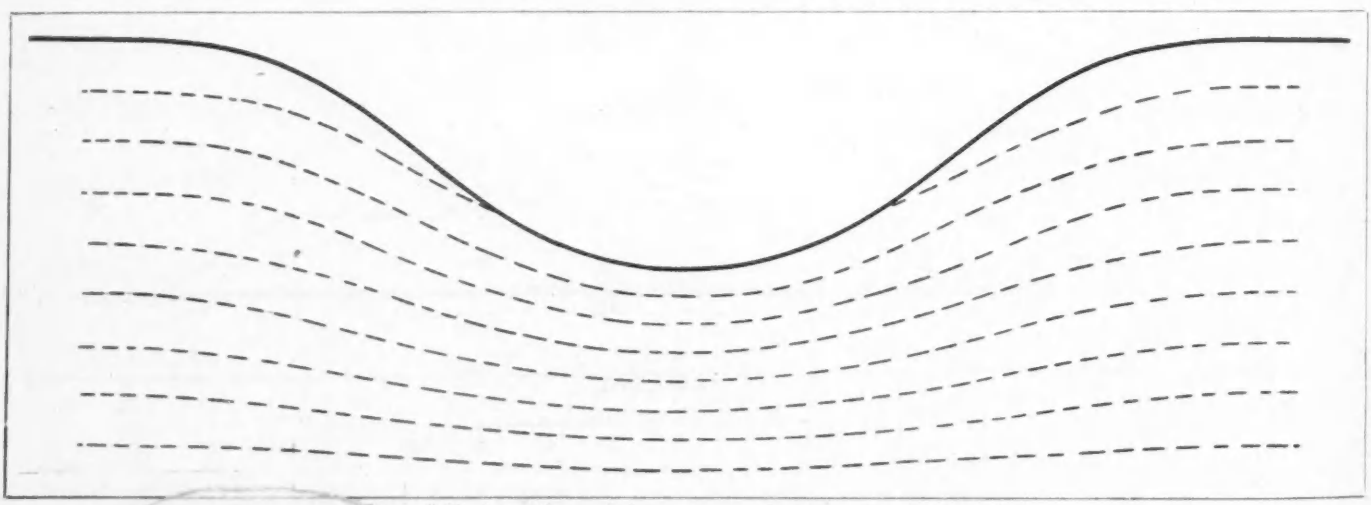

Figure 3-13. Isogeotherms below a topographic depression (estimated).

structure, or depressed, according to conditions.

Synclines

A syncline can also be considered as an association of two symmetrical monoclines. The temperature distribution in a syncline can therefore be readily established from the foregoing data. If, in a given formation, the isogeotherms are raised in an anticline they will be depressed when the same formation has a synclinal structure, and conversely.

Topographic High

The effect of topography can be visualized easily by remembering that the atmosphere acts like a good heat conductor. It is true that the thermal conductivity of air (0.05×10^{-3}C.G.S.) is only a small fraction of that of sediments. However, heat transfer in air by convection and by the action of the wind is extremely important in the atmosphere. In the present work we can therefore consider that the effect of these two factors increases considerably the heat conductivity of air. In other words, we may disregard the effect of these factors provided we substitute for the actual air conductivity a much higher conductivity which here will be called "apparent conductivity." Its value is perhaps of the order of 16×10^{-3}C.G.S., or roughly four times as great as the conductivity of non-consolidated sediments. This value is based on reciprocal gradient determinations in air which, according to the literature available, average 325 feet.

With the foregoing concept, the investigation of the effect of topography is considerably simplified. For example, a topographic high can be considered as being a resistant intrusion in a more conductive material. This case is represented on Figure 3-9, which shows that the isogeotherms are raised in a mountain or hill. An actual example is shown on Figure 3-10. The measurements were taken in a tunnel and the results extrapolated. The actual isogeotherms are probably slightly different from those indicated.

If the topographic high is a good heat conductor (an igneous rock, for example) its heat conductivity and the apparent conductivity of air may have approximately the same value. In this case the isogeotherms are approximately flat (Figure 3-11).

A few investigators neglect the influence of air and assume that the surface of the ground is an isotherm. This condition was investigated on a scale model and the result is shown on Figure 3-12. This simplification results in temperatures which are in excess of the actual temperatures found in the ground.

If the mountain is ridge shaped, rather than dome shaped, the isogeotherms are slighly higher than shown on Figure 3-12.

The warping of the isogeotherms below mountains or hills diminishes gradually with depth and is probably negligible at a depth equal to about three times the height of the superficial relief.

All the data contained in this section and in the following one should be used in a qualitative manner only, since the figure used for the apparent conductivity of air is somewhat uncertain.

Topographic Depression

The effect of a topographic depression can be investigated in a manner similar to that which was used for a mountain. Basically, such a feature is as illustrated on Figure 3-13 where the lower medium (the ground) has a lower conductivity than the upper one (the air). This figure shows that the ground temperature below and around a depression is generally lower than in flat territory. However, if the ground has a very high conductivity (igneous rocks), the isogeotherms are nearly horizontal and no appreciable temperature anomalies are observed.

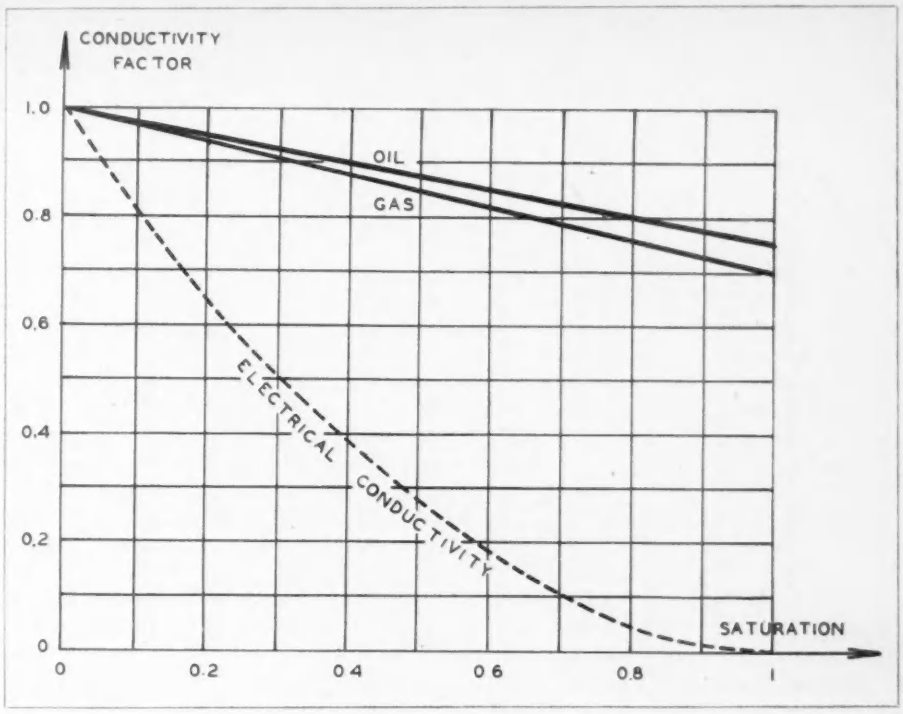

Figure 3-14. Approximate conductivity factor of oil and gas reservoirs (estimated).

Petroleum Reservoirs

Crude oil and natural gas are poorer heat conductors than water. The conductivity of oil is probably only a fourth to a fifth that of water, while the conductivity of gas is still smaller: perhaps a fifteenth that of water. A petroleum reservoir is therefore a poorer heat conductor than a similar reservoir containing only water. Unfortunately, the volume occupied by oil or gas in a reservoir is only a small fraction of the total volume (usually less than 25 percent) and the resulting effect on the reservoir conductivity is small. Figure 3-14 illustrates tentatively the relation between conductivity factor and saturation (fraction of pore space). The conductivity factor is defined as the ratio K_p/K_w, where K_p is the conductivity of the petroleum reservoir and K_w the conductivity of the same reservoir when it contains only water. Figure 3-14 shows also the exact electrical conductivity factor in terms of saturation.

Although the heat conductivity data given by this chart have been estimated, it is likely that they represent roughly the desired relation. It can be seen from the figure that the heat conductivity is a much poorer index of saturation than the electrical conductivity (or its reciprocal, the resistivity). When it is remembered how difficult it is to locate petroleum reservoirs in exploratory wells from resistivity data, even when a potential graph is available, it will be appreciated that temperature measurements (made in formation which are in thermal equilibruim) probably cannot be used to solve this problem.

Gamma ray measurements made in bore holes have shown that petroleum is not radioactive. Therefore, no abnormally high temperatures due to radioactive disintegration can be expected near petroleum reservoirs. The high temperatures mentioned in the old literature are probably caused by the presence of conductive intrusions with which many oil or gas pools are associated.

Ore Deposits

Many ores have a much greater heat conductivity than sedimentary or igneous rocks. Pyrite, for instance, is at least ten times as conductive as the common sediments. If the volume of the ore deposit is large enough, appreciable temperature anomalies can be observed in its vicinity. This is illustrated in the upper part of Figure 3-15, which gives the isogeothermal pattern and a few temperature graphs near an ore deposit ten times as conductive as the surrounding formation which is assumed to be uniform. The scales are relative and can be calibrated as explained in the preceding article.

Certain ores oxydize in the ground. This chemical reaction generates heat, the result of which is to further modify the ground temperature. Temperature increases of more than 10° F. have been reported near pyrite deposits. The central section of Figure 3-15 illustrates tentatively the combined effect of heat generation and high conductivity of an ore deposit. A few depth-temperature graphs are also given.

It is interesting to note on some of these graphs that the temperature at point M is less than in the area situated higher. This is due to the fact that, in addition to the heat source constituted by the core of the earth, there is another source in the vicinity of the area under investigation. Under normal conditions, in particular if the ground is

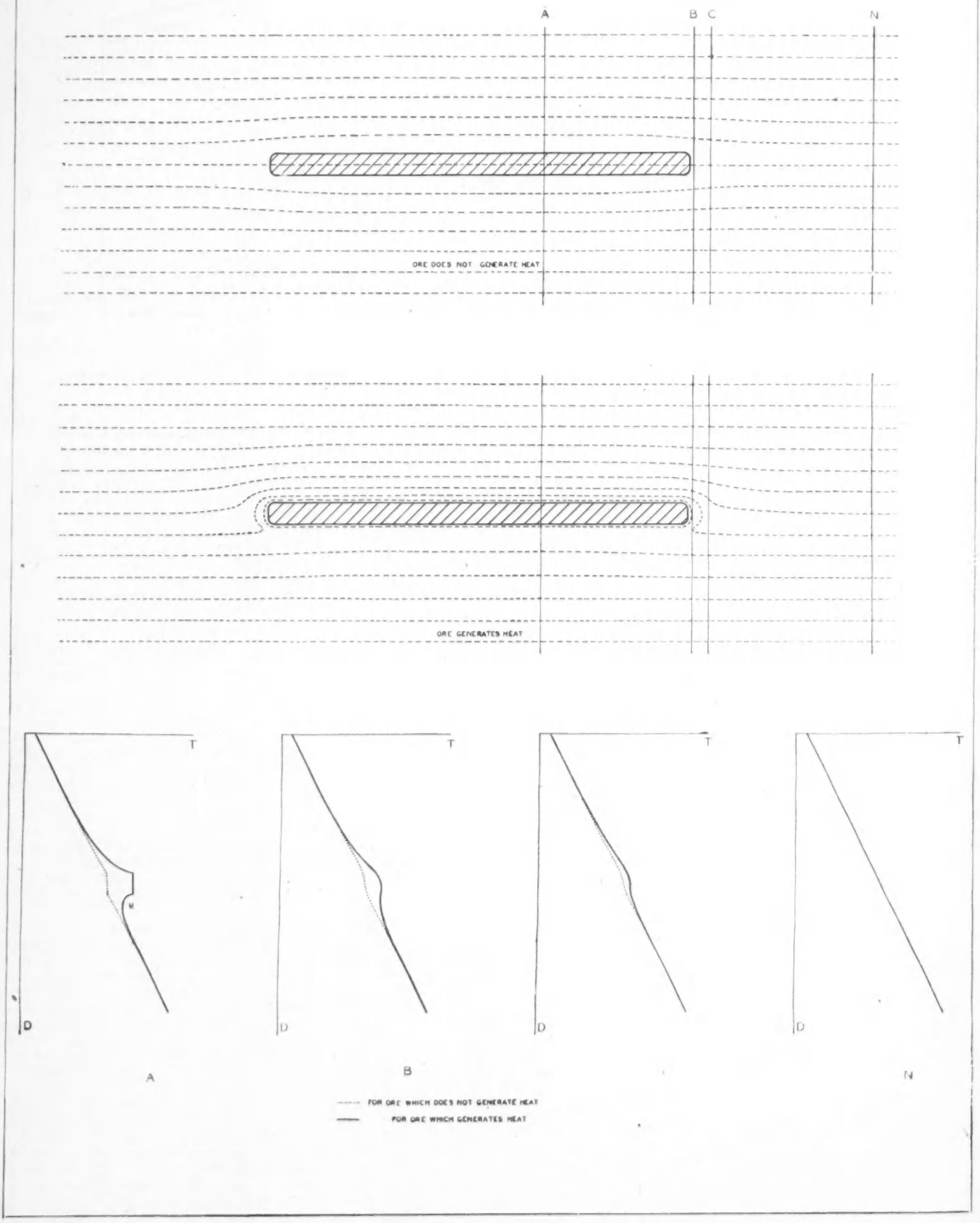

Figure 3-15. Isogeotherms and depth-temperature graphs in the vicinity of ore deposits.

in thermal equilibrium, the temperature steadily increases with depth.

Faulting

A fault having an appreciable thickness can modify by itself the temperature of the ground if the conductivity of the materials it contains differs from that of the sediments. When the fault plane is tilted, the resulting condition is basically similar to a monocline.

If the fault has a small thickness it does not modify by itself the temperature of the ground. However, where it brings in contact beds of different nature, a few minor and local temperature changes take place. This is illustrated on Figure 3-16, which represents a bed B cut by a fault F. B is assumed to be only a fourth as conductive as the surrounding formation S.

If water migrates along the fault, an unsteady state is created, which further modifies the temperature distribution. This condition will not be discussed here.

Shallow Formations

Because the amount of heat received from the sun changes continually, the temperature of the ground down to a depth of 80 to 100 feet varies also—although slowly—with time. However, the mean temperature at any point remains approximately constant.

From a number of observations[2] it has been found that the mean temperature T_A of the air at the surface of the ground (point A of Figure 3-17) is frequently several degrees less than the temperature T_G which would be obtained by extrapolating the depth-temperature graph B C obtained below 100 feet. Since it is unlikely that a discontinuity of several degrees can exist at the surface of the ground, the upper part of graph B C must pass through point A, or close to this point. This means that, at shallow depths, the reciprocal gradient in many areas is appreciably smaller than at greater depths and, consequently, that the heat conductivity of very shallow formations is less than normal.

Such low conductivities are likely due, at least partly, to the fact that shallow formations are probably not entirely saturated with water. In fact, it has been reported[2] that in Southern California—where the ground surface is comparatively dry—the temperature difference T_G-T_A is, on the average, greater than in the other petroliferous provinces.

Conclusion

The temperature data presented in the foregoing discussions refer to relatively simple conditions. Actual formations are usually more complex and present a combination of many of the individual factors investigated here. The temperature distribution for these more complex cases can generally be estimated reasonably well by superposition.

It is appreciated that many other phases of the problem have also been oversimplified, especially quantitatively. This was unavoidable in an elementary treatment of the problem of the ground temperature.

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[1] Hubert Guyod, "Electrical Well Logging. Part 5," The Oil Weekly, September 4, 1944.
[2] A.P.I., Production Bulletin No. 205.

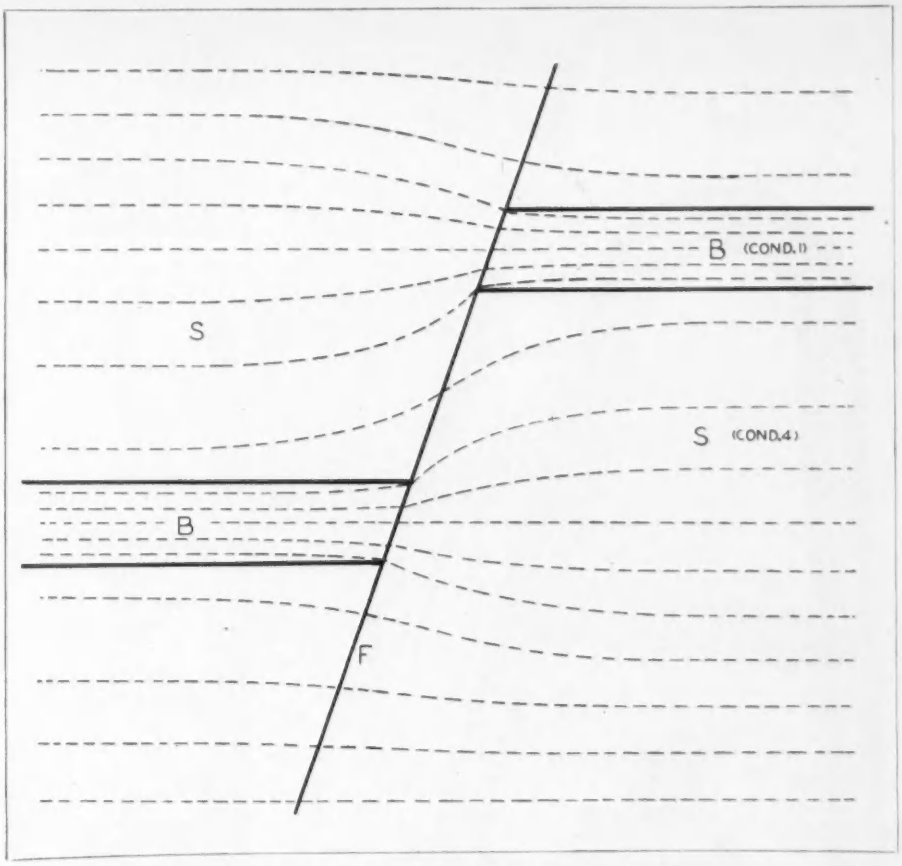

Figure 3-16. Temperature distribution in the vicinity of a fault cutting a resistant bed (scale model data).

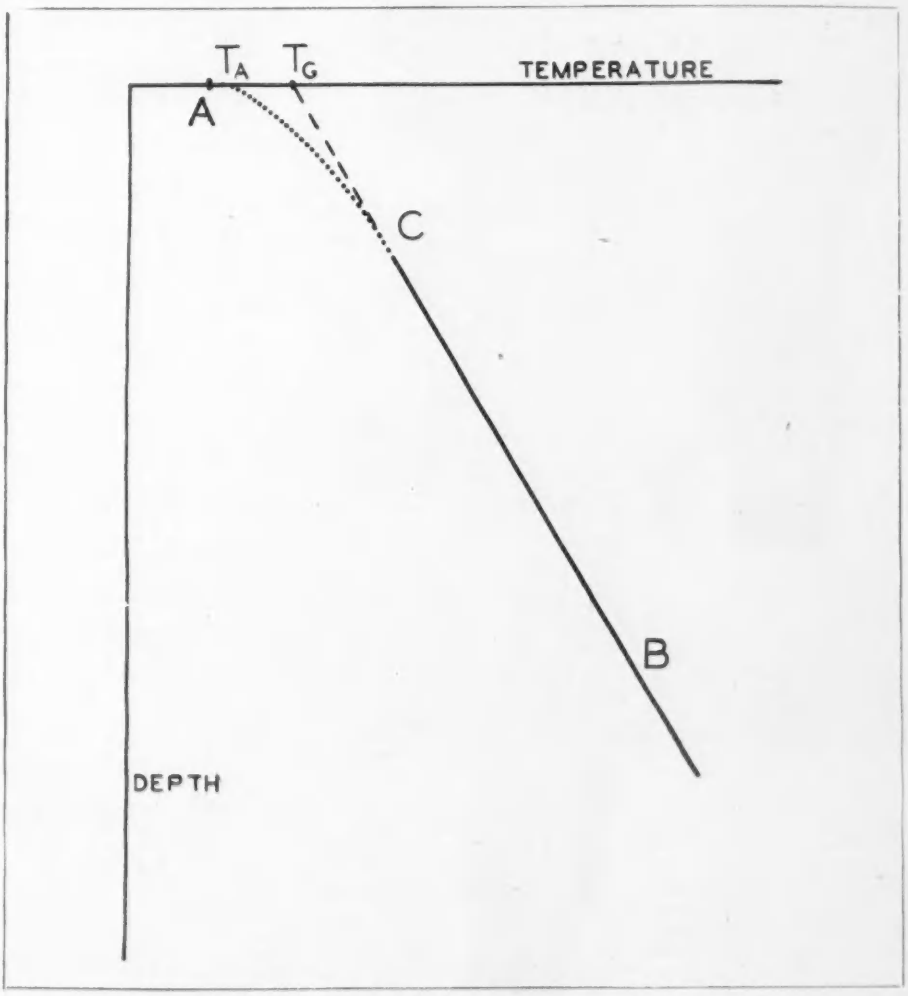

Figure 3-17. Temperature near the surface of the ground.

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NEW EQUIPMENT LITERATURE

For additional information, use mailing card inserted opposite this page

1—Tank Gauge

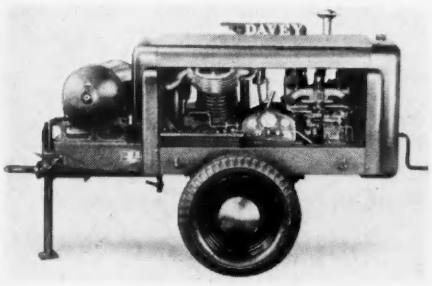
An oil tank gauge that will accommodate all tanks with only two sizes has a combination threaded aluminum plug to fit tank openings of 1½ and two inches in diameter. The two sizes are 18 to 30 inches and 30 to 48 inches. To make adjustments within the two size ranges, it is only necessary to loosen two screws. All friction contact points are said to be spark proof through the combination of metals used in construction. Movable parts are either aluminum against aluminum or steel against aluminum, making the gauge safe in all combustible liquids.

The flint glass top is threaded into the aluminum plug in contact with a special cork gasket which makes the gauge gas-tight. To the outside of the glass is black lettering on white background to permit easy reading and better visibility in dark places. Manufactured by Bearlee Products Co., Green Bay, Wisc.

(Check item 1 on postcard for more information.)

2—Air Compressor Unit

This new air compressor unit, Model 60V, is available in standard skid and two-wheel pneumatic tired trailer mounting styles, also with flanged wheels for railroad work. It is likewise offered,

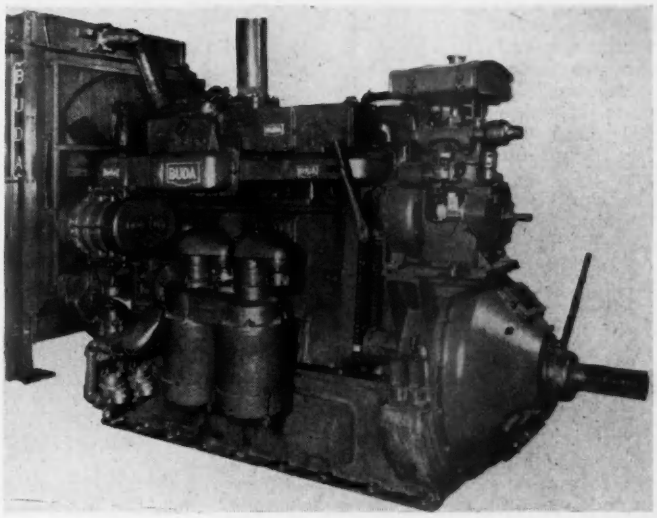


complete with a Davy heavy-duty power take-off, as an "auto-air" compressor for truck mounting. The compressor produces 60 cubic feet per minute at 100 pounds pressure and is designed for heavy duty service.

The compressor has one low-pressure cylinder with a 5¾-inch bore and a 4½-inch stroke. The high-pressure cylinder has a 3⅝-inch bore. Operating speed is 1225 revolutions per minute. Weight of the two-wheel model is 2100 pounds. It is 88 inches long, 62 inches wide, and 51½ inches high. The compressor is powered by a Hercules IXB engine. Manufactured by Davy Compressor Company, Kent, Ohio.

(Check item 2 on postcard for more information.)

3—Engines

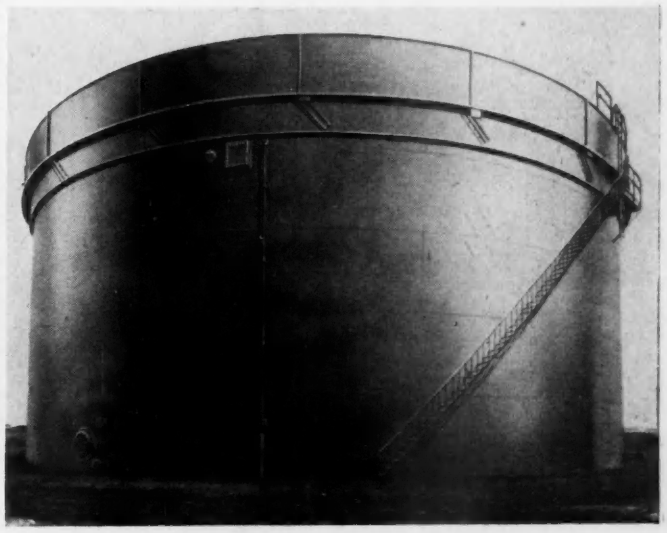


A recent development in oil field drilling engines is a new line of supercharged diesel and natural gas engines. Five models of the new 1879 series have been developed, all models having the same displacement of 1879 cubic inches. They are a six-cylinder engine with a bore of 6¾ inches and a stroke of 8¾ inches. These 1879 series engines deliver 171 useable horsepower at 900 revolutions per minute for the natural aspirated engines and 213 useable horsepower at the same speed for the supercharged models.

The heavy-duty 1879 engines are available in the five following models: 6-DC-1879 natural aspirated diesel, 6-PC-1879 natural aspirated natural gas engine, PCG & PCD-1879 convertible from gas to diesel or diesel to gas engine, 6-DSC-1879 supercharged diesel, and 6-PCS-1879 supercharged natural gas-butane engine. The two newest 1879 engines are the supercharged engines, the advantages of which are claimed to be 25 to 30 percent more power than non-supercharged engines of the same size. According to the manufacturer, supercharging means more power at less weight, greater acceleration and lower fuel consumption. Manufactured by The Buda Company, Harvey, Ill.

(Check item 3 on postcard for more information.)

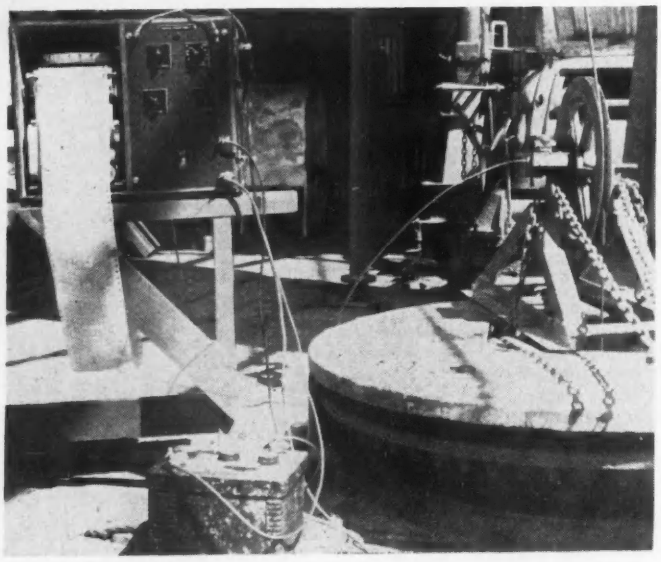
4—Storage Tank



New principles of construction and design have been applied to this vapor-lift storage tank. This new tank was built for full liquid storage capacity, and in addition, to function as the "lung" which stores the vapors generated in the three cone roof tanks to which the vapor-lift tank is connected. Without this vapor-lift tank the vapors formed in the three cone roof tanks would be exhausted into the atmosphere with an attendant loss in quality and quantity of the liquids. Movement of the roof is directed and stabilized by tracks placed at regular intervals at angles of 45 degrees; roller guides ride in these tracks and other roller guides, placed at 90 degrees to the rollers in the tracks, ride against the side of the tank and take any lateral load such as that produced by high winds. The tank has two pressure regulators, the first set at two ounces and the second at 2½ ounces. The lifting pressure required to raise the roof is 1¾ ounces. The actual difference between the pressure to lift and drop the roof is .05 ounce. The second regulator accommodates exceptionally high in-pumping rates. Vapor-lift tanks can be built to capacities of 100,000 barrels. Manufactured by the Hammond Iron Works, Warren, Pa.

(Check item 4 on postcard for more information.)

5—Logging Device



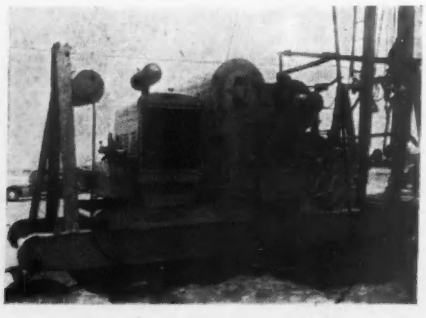
A new fully portable logging device is designed for every core drilling rig, for use on seismograph drilling rigs (in making weathering corrections, etc.) and for use in shallow water well completions. It weighs only 50 pounds and is 2 feet high, 1 foot wide and 1½ feet long. According to the manufacturers, the recorder is simple to operate and requires no knowledge of electricity or electronics. It is fully automatic, with a recording capacity of 150-foot line spaced per minute. The stylus records directly on the 5¾-inch wide log paper the formation potential, but single point impedence and caliper may be made. The recorder is powered by the standard six-volt battery.

Included with the logging device is a portable, 50-pound measuring device. The measuring wheel is connected directly to the recorder by means of cable drive. The sheave is said to be accurately ground and the complete unit is furnished with 2500 feet of 5/16-inch helically wrapped, single conductor wire line. Available on rental basis from Halliburton Oil Well Cementing Company, Duncan, Okla.

(Check item 5 on postcard for more information.)

6—Drilling Rig

The Model "R" drilling rig is specially designed for cable tool drilling and is equipped with three separate, independently-driven drums. These three drums handle the drilling line, the casing line



and the sand line, thereby eliminating the necessity of unspooling one line in order to spool on another when changing operations. The third drum is especially useful with beam operations when the driller finds it necessary to "carry the pipe."

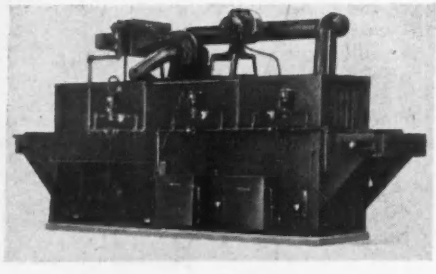
This third drum is driven from a rotary drive friction clutch on a countershaft and through an eight-jaw dentil-type clutch mounted on the drum end. In this manner, the spudder or beam operations is said not to be interfered with in any way. This third drum is available with new machines, or can be supplied to any Cardwell Model "R" spudder or beam rig in the field. Manufactured by Cardwell Manufacturing Company, Inc., Wichita 1, Kansas.

(Check item 6 on postcard for more information.)

7—Washing Machine

A flat conveyor type, spray washing machine, adaptable for cleaning and similar spray operations, as well as for drying, will rapidly spray any parts which may be handled, whether in baskets, on racks, or simply laid on the conveyor. The manufacturer states this tvpe of conveyor can be adapted to many different and difficult problems. Special parts can be positioned if necessary and little labor is required for loading. Alkaline, acid, air drying, oil spray, and similar operations can be handled.

The machine features a long horizontal tunnel placed on top of a series of solution tanks. A continuous flat conveyor runs the length of the tunnel,

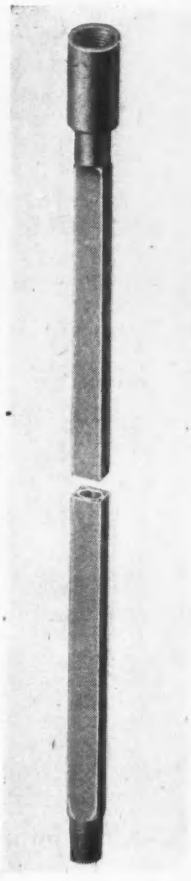


carrying parts through a series of operations. Solutions are forced on the parts through a battery of spray nozzles by means of a powerful pump. The machine is self-contained, but it may be connected to any other conveyor-moved operation, thus reducing parts handling to a minimum. Manufactured by Optimus Equipment Co., 229 Church Street, Matawan, N. J.

(Check item 7 on postcard for more information.)

8—Kelly

Designed especially for use on well completions, clean-out work, exploratory work and light portable rigs is the "Ful-Flo" kelly as illustrated. It has been built on a new principle to meet the severe requirements of rotating and supporting the string as well as supplying full flow circulation.



It is constructed of an inner core of seamless, thick-walled tubing inside a tight fitting outer shell of square, cold-drawn steel. The inner core and outer shell are securely bonded together to form an integral unit. This type construction is said to combine greater resistance to bending, lighter weight, more circulation area and a true bore throughout its length.

This new kelly is said to feed smoothly through the kelly bushing due to its stability and eliminates whip or gyration. It is tested to 3000 pounds per square inch hydrostatic pressure, and is available in 2½ and three-inch sizes. The top connection is 3½-inch left hand female drill pipe thread on both sides. The 2½-inch size has a male two-inch external upset end, eight round tubing thread bottom connection, and is available in 18½ feet overall length. The three-inch kelly is 21½ feet long and has a male 2½-inch external upset end, eight round tubing thread bottom connection. Manufactured by The Guiberson Corporation, P.O. Box 1106, Dallas.

(Check item 8 on postcard for more information.)

9—Cartographic Camera

Meeting the specifications of the U. S. Geological Survey and the Department of Agriculture is this nine by nine-inch cartographic camera which is claimed to provide rigid precision aerial photographs for topographic and planimetric maps used in geological exploration work.

Its focal length, field of view, negative size, construction, tolerances and other specifications are said to permit ready employment of its negatives in the multiplex projector and other stereoscopic plotting instruments. There are two cones lving one within the other, which are operated automatically or semi-automatically. The inner cone, or "optical heart" contains the focal plane and the optical system, and is readily removed as a complete unit for calibration by the Federal Bureau of Stand-

ards. The outer cone contains all operating mechanisms. The front and rear lens elements may be removed for cleaning and inspection without disturbing collimation, dowels being provided as

an index for accurate alignment when the lens is replaced.

A choice of lenses of three focal lengths. 5¼-inch at f6.3 metrogon, 6-inch at f6.3 metrogon, and 8¼-inch at f6.8 aerotar, are available. Wide angle short focal length lenses are used for map compilation by photogrammetric methods because they afford economy, a satisfactory scale, and exaggerated parallax. The shutter, which is removable without disturbing the lens, has speeds of 1/50th, 1/100th, 1/200th and 1/300th second. The interchangeable A-5A film magazine provides for 180 feet of roll film with capacity for 250 exposures of nine by nine-inch negatives. The complete unit is tropicalized to prevent deterioration due to corrosion and fungus. Manufactured by Fairchild Camera and Instrument Corporation, Jamaica, N. Y.

(Check item 9 on postcard for more information.)

10—Drill Pipe Wipers

Drill pipe wipers in new replaceable-insert and one-piece types are claimed to have all the advantages of conventional wipers plus (1) replaceable inserts, (2) tapered center hole, (3) raised

center hub, and (4) strong, flexible construction.

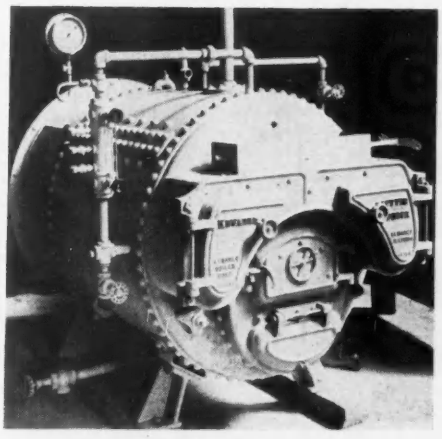
When the insert has become worn and ineffective, it may be replaced with a new insert to add life to the wiper. One wiper rim, according to the makers, will outlast several inserts. The tapered insert provides efficient wiping and long life due to even distribution of wiping pressure. Radial ribs in the wiper increase its strength.

The insert may be bolted or laced into place, and requires no special tools. The use of different size inserts eliminates the need for more than one wiper, the manufacturers claim. One insert may be used on one size of pipe while the second size insert may be used on smaller size pipe. Both the replaceable (RC) and one-piece (S) types are available in outer diameters of 14, 15, 17 and 19 inches. Each of these sizes is made for both 3½-inch and 4½-inch drill pipe. Manufactured by Baroid Sales Division, National Lead Company, 830 Ducommun St., Los Angeles 12.

(Check item 10 on postcard for more information.)

11—Boiler

Six to thirty horsepower at 100 pounds steam pressure is the capacity load of the new Scottie Junior boiler which is available in six sizes in the portable return tubular scotch marine type. It



is steel riveted and has from 840 to 4200 square feet of radiation, depending on the horsepower required. It is a self-contained unit fired internally in a tubular firebox. The steel furnace is entirely surrounded by water. The tubes are of 12 gauge stainless steel, three feet long, with solid through stays and riveted girth seams that brace the flanged heads front-to-rear.

The front furnace extension with refractory nozzle and rear lining in the high combustion chamber are said to create ideal flame conditions in automatic firing with gun burners. No brick work is required with this new boiler. The precast refractory insulation is fitted in place at the factory and the boiler is shipped complete with set of accessories. Manufactured by Kewanee Boiler Corporation, Kewanee, Ill.

(Check item 11 on postcard for more information.)

Literature

12—Power Rig

The new Turney Model 4-B power drilling rig is the subject of a brochure. Four pages long and in two colors, this publication shows several illustrations of the heavy-duty power rig—three shop views and one actual field installation. Detailed specifications are given on both the draw works and the engines and power drive. Weights and dimensions are included. Ten of the outstanding features of this rig are presented. Published by the Turney Manufacturing Company, Inc., Box 765, Houston.

(Check item 12 on postcard for more information.)

13—Concrete

Shrinkage of concrete and mortar, its influence on durability and serviceability, the principal factors affecting it, and its control and elimination, are discussed in the 34-page booklet, "The Action of Embeco in Concrete and Mortars." Explaining the principle of specially prepared metallic aggregate in controlling shrinkage, this booklet describes the use of Embeco for machinery and heavy equipment grouting, cement gun work, and patching and repairing concrete. Charts, graphs and useful technical data add to the value of the book. Published by The Master Builders Company, 7016 Euclid Avenue, Cleveland 3.

(Check item 13 on postcard for more information.)

14—Engines

The first 40 years of the Waukesha Motor Company are illustrated in both products development and plant expansion in a 32-page, two-color booklet containing over 100 photographs. Uses of these internal combustion engines in the early days are compared with the company's latest products for similar applications. Research in engine design is described and illustrated along with pictorial examples of plant and office expansion of the company's facilities. Varied applications of Waukesha engines are shown, with numerous photographs illustrating oil field installations. Other applications are shown.

Released by the Waukesha Motor Company, Waukesha, Wis.

(Check item 14 on postcard for more information.)

15—Stainless Steel

A large data sheet, folding into an 8¼-inch by 11-inch cover, lists every well known stainless steel by trade name with the proper Arcos alloy electrode for welding each. AISI type numbers and analyses of the trade named stainless steels are given, as well as the welded metal chemical analysis of the corresponding Arcos electrodes. Published by the Arcos Corporation, 366 Gulf Building, Philadelphia 2.

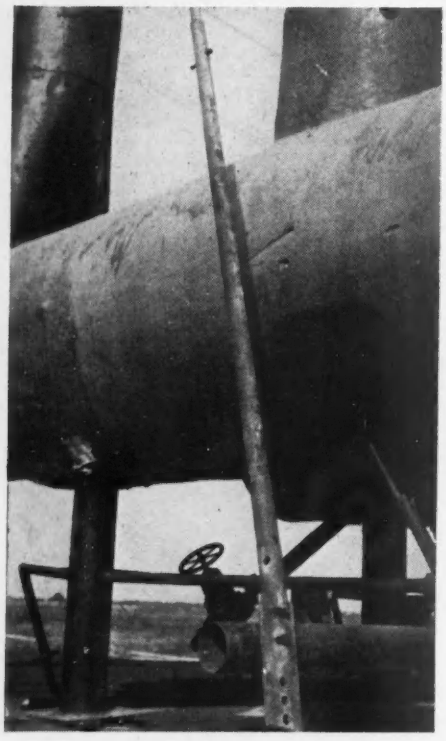
(Check item 15 on postcard for more information.)

16—Diesel Engines

Two technical bulletins have been issued describing the General Motors Twin 6 and Quad 6 industrial diesel engines. Printed to standard notebook size, the bulletins contain photographs, specifications, and a complete list of standard equipment along with optional equipment and a selection of accessories. Line drawings of both the front and side views are included with engine performance curves. Literature available from C. Jim Stewart & Stevenson Services, Box 9283, Houston.

(Check item 16 on postcard for more information.)

Adjustable Stays Speed Stack Bracing

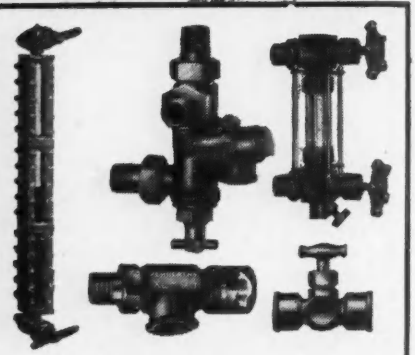


BOILER SETTING

By using telescoping, adjustable stays made of pipe materials, rigging up and disassembly of boiler installations can be speeded up. A typical stay consists of a length of 1½-inch pipe which telescopes inside a length of two-inch, the latter section being located nearest the ground as illustrated. A bolt slipped through matching pairs of holes in the two pipes permits coarse adjustment of the length needed, and a short piece of flat steel perforated at close intervals and welded to the lower end of the two-inch pipe permits closer adjustment when attaching to the fitting near the fire box base. Easily and more quickly installed than some of the other more common types, this telescoping stay also provides valuable support for the stacks when the latter are swayed either forward or backward by wind, and for this reason only two stays are required per stack.

When used on the same installations, these stays can be marked for easy duplication of set-up at succeeding locations. When a boiler is taken out of service and placed in another battery, the several adjustments available on the stays simplify rigging up the new installation.

PENBERTHY
QUALITY
PRODUCTS



Penberthy liquid level gages of various types—injectors—ejectors—all so widely used throughout the oil industry because they have always been dependable under the most severe service conditions.

All are of rugged construction and made by an organization with 57 years experience in the manufacture of quality products.

Catalog 2450 to 2455

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

Shock Absorber Mountings

GENERATOR MOUNTING

The high speed at which turbo-generator units are driven frequently sets up harmonic vibrations which, at peak periods, seriously affect other equipment mounted nearby. Also, when the base of the unit is a steel plate, annoying high-pitched sounds sometimes are produced.

One contractor eliminates these difficulties by mounting the generator unit on rubber pads, utilizing sections cut from salvaged drill pipe protectors for the shock absorbers. A guide or retaining ring of approximately the same size as the inside diameter of the rubber section is tack-welded to the generator support brackets, so as to prevent lateral shifting of the cushion. A bolt is then passed down through the bracket, pad and supporting platform. This bolt is pulled snug, and double-nutted to prevent loosening. If the device tends to rattle, a small washer of rubber or balata belting under the nut will cushion the retainer without detracting from the shock-absorbing effectiveness of the rubber generator mounting.

The rubber pads may be painted to match the equipment, or left their natural color, as desired. Painting helps somewhat in warding off the destructive effects sustained if oil is spilled on the pads.

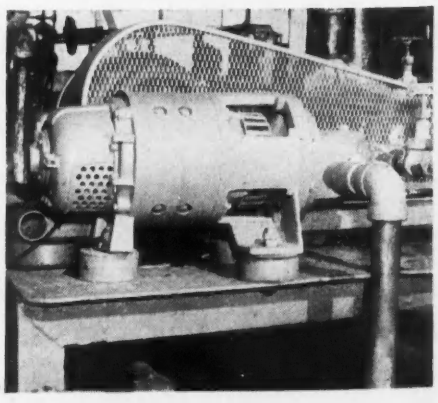
Heavy Duty Tool Rack

TOOL STORAGE

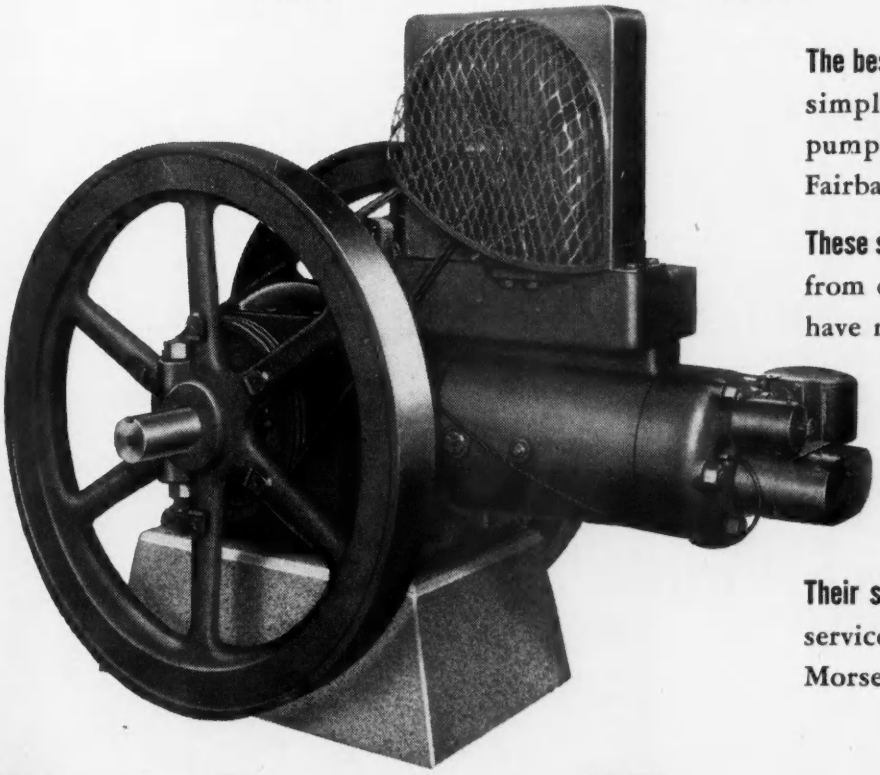
Fabricated from two 2 x 3-foot sections of perforated steel floor plate and twenty two-foot sections of two-inch pipe and five of 2½-inch pipe this tool rack provides storage space and instant identification for all the hand tools normally used on the rig floor. The larger diameter pipe ranged down the center of the rack, takes the heavier tools, while the lighter and shorter units, stored in the smaller pipe nipples, do not interfere with selection of tools at the center.

The upper plate is cut out to full pipe nipple diameter at each opening, while the base is simply perforated with a ½-inch hole to permit water and mud to drain from the pockets. The many perforations in the plate permit quick drainage of any mud which may reach the rack, and also serve as storage space for a few spikes, thus kept handy for floor repair.

A swiveled loop, set at the center of balance of the rack, permits it to be lifted with the derrick line without danger of tipping and possible loss or spilling of any of the tools stored in the various sockets. Positioned at the end of the pipe-racking square, the rack is handy to floor operations, and used equipment may be stored without excessive travel or loss of time.



SIMPLICITY DOES IT!



The best results often reward the users of the simplest equipment... and for oil well pumping there is nothing simpler than Fairbanks-Morse ZC Engines.

These single-cylinder engines are amazingly free from complicated parts. For instance, they have no water-circulating pumps, no thermostats, no oil pumps. Users will tell you that they're lastingly dependable in round-the-clock service, and that they require a minimum of attention.

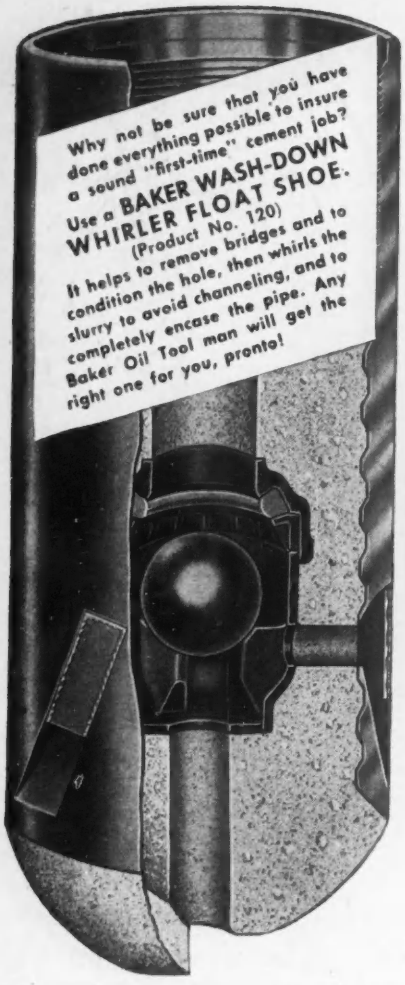
Their simplicity also means that fieldmen can service them right on the spot. Fairbanks, Morse & Co., Chicago 5, Illinois.

Fairbanks-Morse

A name worth remembering

Oil Field Equipment • Diesel Locomotives • Diesel Engines • Generators • Motors • Pumps Scales • Magnetos • Stokers • Railroad Motor Cars and Standpipes • Farm Equipment

Fairbanks-Morse Super-Spark MAGNETOS make engines start easily, improve performance, save fuel. Models for all engines. See the nearby Fairbanks-Morse Magneto Service Station.


Why not be sure that you have done everything possible to insure a sound "first-time" cement job?
Use a BAKER WASH-DOWN WHIRLER FLOAT SHOE. (Product No. 120)
It helps to remove bridges and to condition the hole, then whirls the slurry to avoid channeling, and to completely encase the pipe. Any Baker Oil Tool man will get the right one for you, pronto!

An A.A.P.G. Publication!

TECTONIC MAP
of the
UNITED STATES
1944

Prepared under the Direction of the Committee on Tectonics, Division of Geology and Geography, National Research Council.

Chester R. Longwell, Chairman, Philip B. King, Vice-Chairman.

Charles H. Behre, Walter H. Bucher, Eugene Callaghan, D. F. Hewett, G. Marshall Kay, Eleanora B. Knopf, A. I. Levorsen, T. S. Lovering, George R. Mansfield, Watson H. Monroe, J. T. Pardee, Ralph D. Reed, George W. Stose, W. T. Thom, Jr., A. C. Waters, Eldred D. Wilson, A. O. Woodford.

A NEW GEOLOGIC MAP OF THE UNITED STATES AND ADJACENT PARTS OF CANADA AND MEXICO

Geologic structure, as evidenced and interpreted by a combination of outcropping areas, bedrock, surface disturbance, and subsurface deformation, is indicated by colors, symbols, contours, and descriptive explanation. Igneous, metamorphic, and selected areas of sedimentary rock are mapped. Salt domes, crypto - Volcanic disturbances, and submarine contours are shown. The base map shows state boundaries, rivers, a pattern of cities, and 1-degree lines of latitude and longitude.

The scale is 1:2,500,000, or 1 inch equals 40 miles. Printed in 7 colors on 2 sheets, each about 40 x 50 inches. Full map size is about 80 x 50 inches.

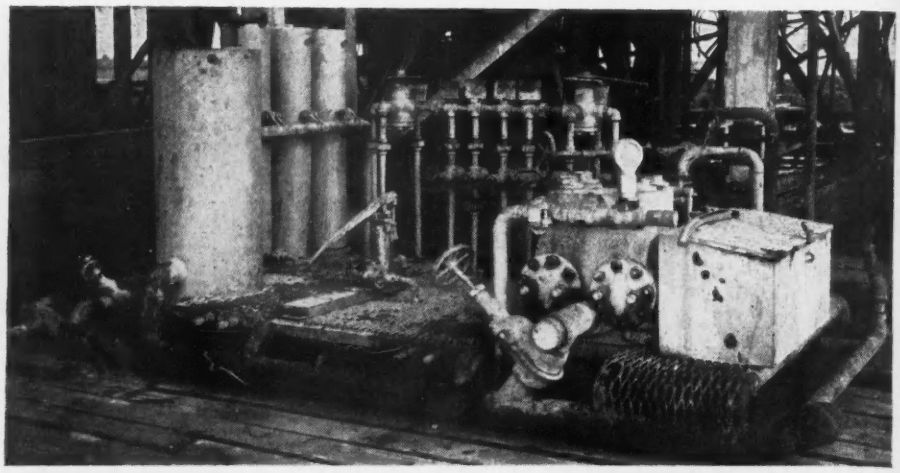
PRICE POSTPAID

$2.00 rolled in mailing tube
$1.75 folded in manila envelope
$1.50 in lots of 25, or more, rolled or folded

The American Association of Petroleum Geologists

Box 979, Tulsa 1, Oklahoma, U.S.A.

Blowout Preventer Setup Mounted on Skids



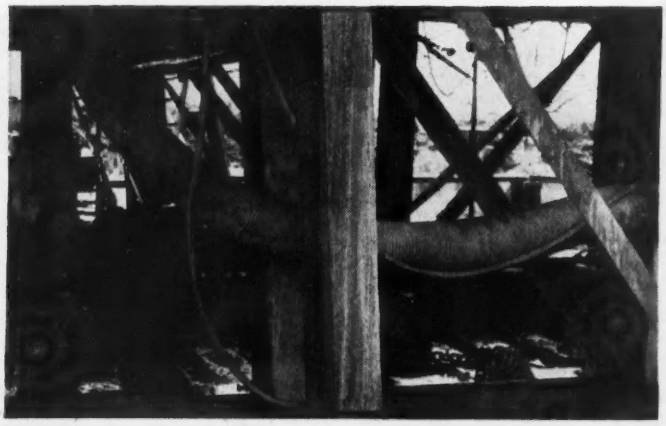
BLOWOUT CONTROLS

Instead of following the usual practice of mounting the blowout preventer controls on the derrick floor somewhere near the driller's stand, one company placed a pump, accumulator cylinders and all the control valves on a specially constructed skid with individual steam line to the main preventer just ahead of the separator unit.

This unit, set at any convenient point adjacent to the derrick, enables the preventer rams to be closed by the crewman who is already on the ground, while other workers are free to seek safety by leaving the elevated derrick floor as soon as a hazard is evident.

The pressure from the special pump is carried to the preventer ram cylinders through high-pressure hose instead of the customary pipe. This hose is usually supported at intervals from the derrick structure, although it may be laid on the ground if desired. It is brought in across an area where there is no danger of damage from dropped equipment and, being extremely flexible, is not affected by vibration or settling of the derrick structure.

Flexible Tubing Provides Motor Ventilation



MOTOR VENTILATION

On an electric-driven drilling rig, ventilation of the motor used to drive the rotary is complicated by mud sprayed on the floor when drill pipe is being pulled. The motor, usually located near the spot conventionally used by the sprocket on a chain-driven rotary, is directly in the path of the hose jet when the floor is washed down after making up a joint or running pipe, and the entry of water and mud into the ventilator duct is almost inevitable.

One company solves the problem of providing plenty of uncontaminated air to the motor by attaching a long duct of flexible tubing to the opening in the motor housing, carrying the duct to one corner of the substructure where a motor-driven fan is set up to draw air from an area unaffected by mud spray, floor hosing, and weather conditions. Such a change in the ventilation system completely eliminated the former frequent shutdowns and occasional motor losses which were encountered when the ventilating unit was mounted directly atop the rotary-drive motor.

By wiring the ventilating fan motor in parallel with the motor driving the rotary, it is impossible to forget the fan motor or operate the drive without proper ventilation.

MOBILE WATER PURIFICATION

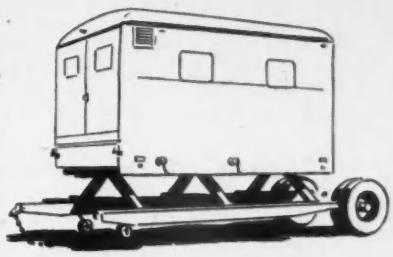
To the men who are again spreading over the world to search the jungles, build roads to out-of-the-way places, dig in ancient ruins, a mobile water purifier means protection against disease from impure water. These truck or trailer mounted Water Purification Units are designed to accompany such men far from the safeguards of civilization. They are the best—and often the only—assurance of safe drinking water in the remote places of the world. They can be taken wherever a wheeled vehicle can go.

For: Oil companies, mining companies, road building crews, lumbering operations, expeditions, heavy construction jobs.

Also of value to: City Health Departments, State Health Departments, Red Cross, Disaster Control Commissions, Departments of Agriculture, State Forestry Departments, Boy Scouts, Girl Scouts, Sea Scouts.

All water purification equipment is subject to priority regulations. VETERANS OF WORLD WAR II are invited to be certified at the War Assets Administration Certifying Office serving their area and then to purchase material offered herein.

Exporters: The War Assets Administration solicits your inquiries. Communicate with your foreign clients promptly.



FOR IMMEDIATE SALE

AT REDUCED COST

Truck type self-contained Water Purification Unit

These water purifiers are mounted on trucks or trailers, ready for immediate use. They do not require trained operating personnel, they are cleaned easily and with little loss of operating time.

Capacity 1,200 to 6,000 gallons per day.

Some of the available types:

Distillation Unit—Cleaver-Brooks model, gasoline engine driven, trailer mounted, 200 G.P.D.

Purification Unit—Wallace & Tiernan make, mounted on GMC 2½ ton truck, 6 x 6 chassis, 100 CFM.

Distillation Unit—Cleaver-Brooks make, gasoline engine driven, trailer mounted, 2,000 gals. per day.

Most of this equipment is located at Charlotte, N. C., New Orleans, La., Richmond, Va., and San Francisco, Calif.

WAR ASSETS ADMINISTRATION

GOVERNMENT OWNED SURPLUS

Offices located at: Atlanta • Birmingham Boston • Charlotte • Chicago • Cincinnati Cleveland • Dallas • Denver • Detroit • Fort Douglas, Utah • Fort Worth • Helena Houston • Jacksonville • Kansas City, Mo. Little Rock • Los Angeles • Louisville Minneapolis • Nashville • New Orleans New York • Omaha • Philadelphia • Portland, Ore. • Richmond • St. Louis • San Antonio San Francisco • Seattle • Spokane • Tulsa

652-9

Production and Refinery Runs Down, Gasoline Stocks Up

Both production and refinery runs of crude were slightly lower in the week ended October 26 than in the previous week, reports to The American Petroleum Institute showed. Plant output of gasoline decreased, but there were increases in production of the light and heavy fuel oils.

Additions were made to stocks of gasoline during the week, which reflected the seasonal easing of demand for that fuel. Although demand for the burning oils showed considerable rises during the week, their stocks continued to accumulate.

U. S. crude production averaged 4,730,000 barrels daily during the week, a drop of 3000 barrels from the daily rate of the previous week, but 457,000 barrels or 10.7 percent more than the 4,273,000 produced daily in the comparable week of last year.

Crude runs to refinery stills averaged 4,758,000 barrels a day in the week, down 21,000 a day from the previous week's and 33,000 barrels or 7/10 of one percent less than the daily runs in the corresponding week a year ago.

Refinable crude oil stocks in the country totaled 220,774,000 barrels on October 19, the Bureau of Mines reported. That amount was a decrease of 1,157,000 barrels from the week before and 5,623,000 barrels or 2.5 percent less than the 226,397,000 barrels on hand a year earlier.

Gasoline production, including natural blended at the refineries, amounted to 14,863,000 barrels in the week of October 26, down 11,000 barrels from the previous week's output and 484,000 barrels or 3.2 percent less than was produced in the like week of last year. Stocks of finished and unfinished gasoline totaled 86,423,000 barrels on October 26, having increased 493,000 barrels during the week. These stocks were 11,909,000 barrels or 16 percent more than the 74,514,000 barrels held a year before.

Distillate fuel oil production of 5,710,000 barrels in the week ended October 26 was 44,000 more than in the previous week and 791,000 barrels or 16.1 percent more than the output in the comparable period last year. Stocks of distillate fuel increased 738,000 barrels during the week and totaled 65,499,000 barrels on October 26, which was 20,672,000 barrels or 46.1 percent more than the 44,827,000 in storage October 27 of last year. These current stocks are at the highest level reached in U. S. petroleum history.

Residual fuel oil output amounted to 7,728,000 barrels in the week ended October 26, an increase of 219,000 over the previous week's production, but 1,254,000 barrels or 14 percent less than the 8,982,000 made in the like week of 1945. Stocks of residual oil increased 360,000 barrels during the seven-day period and stood at 60,872,000 barrels on October 26. These stocks exceeded the 46,547,000 barrels held in storage October 27, 1945, by 14,325,000 barrels or 30.8 percent.

Industry Markets Steady With Only Scattered Price Changes

The industry's markets continue steady, with only a few scattered price changes made. Continued mild weather has resulted in fuel oil storage problems in some areas and is tending to push prices downward, while gasoline prices remain steady as demand holds abnormally high. Crude oil supply remains tight in some areas, but no price hikes or rumors of premium payments were reported during the week.

Of particular interest to producers is the continuing firmness of the market for crude oil. In some districts the crude supply has become tight, with some refiners reporting plant operations considerably under capacity because of the shortage of crude. This situation may be relieved to some degree during November in Texas and Louisiana, where allowables were increased. This crude shortage has existed for a considerable period in some areas and has fostered unconfirmed rumors that premiums have been or will be paid for crude, which will tend to promote further boosts in officially posted prices if the condition continues.

Lube oils continue to have the strongest market of all principal products, with all areas reporting supplies tight and no apparent easing of demand.

Gasoline demand is still holding up well in almost all parts of the nation, due to the unseasonably warm weather. Refiners' and marketers' prices on gasoline are generally unchanged, except for one refiner in Western Pennsylvania, who lowered his price ½ cent on regular grade.

Light fuel oil prices were dropped at New York harbor as warm weather continued along the northern seaboard area. Barge lots of No. 2 fuel were offered at 6.05 cents per gallon, which is a .15 cent drop. However, this condition in the northeast is only temporary and with the advent of cooler weather the fuel oil market will rally quickly. Increased call for the lighter fuels was reported by suppliers in Western Pennsylvania and Central Michigan, with no change in prices. Burning oil tank wagon prices have been advanced ½ cent in the Chicago area.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod.		Runs to Stills		Crude Stocks		Gasoline Stocks		Gasoil and Distillate Stocks		Residual Fuel Oil Stocks	
	Barrels Daily	Week Ended	Barrels Daily	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended
Highs:												
1941	4,337	11-22	4,120	10-18	266,187	3-29	99,727	3-29	54,983	11-15	102,448	1- 4
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 8
1943	4,436	11-13	4,331	12- 4	245,752	5-29	94,159	3-20	47,187	11-27	72,881	1- 2
1944	4,762	9-30	4,798	12-30	240,992	1- 1	89,162	4- 1	48,162	10-28	64,744	10- 7
1945	4,944	7-21	[1]5,140	8-18	227,554	10-13	99,012	3-24	45,341	11-17	56,074	1- 6
1946	[1]4,961	6-15	4,911	8-31	229,430	3- 2	105,233	2-16	[1]65,499	10-26	60,872	10-26
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 3
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,382	4-12	90,914	7-13
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-18	232,191	1- 9	68,182	10-16	30,732	4- 3	57,596	12-25
1944	4,357	1- 1	4,228	2-12	220,258	9- 9	76,302	1- 1	30,232	4-19	49,737	3-18
1945	3,621	10- 6	3,409	10- 6	[4]211,813	8-25	70,791	10-13	26,483	3-17	38,548	5-26
1946	4,403	3- 9	4,498	1-12	218,193	1- 5	85,324	9-28	25,131	3- 9	37,289	4- 6

TRENDS OF 1945 AND 1946

Trends in Week Ended	Crude Oil			Gasoline		Gasoil and Distillate		Residual Fuel	
	Production Daily	Runs to Stills Daily	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End
1946:									
January 5	4,548	4,651	218,193	14,488	98,494	5,293	35,199	8,867	42,371
January 26	4,626	4,553	220,544	13,622	101,737	5,720	29,498	8,411	39,722
February 23	4,714	4,595	226,699	13,175	104,709	5,728	25,398	7,913	39,290
March 30	4,425	4,684	224,994	13,896	104,715	5,337	28,240	8,738	37,746
April 27	4,672	4,685	224,443	14,228	99,631	5,568	30,466	9,204	39,404
May 25	4,759	4,857	222,214	14,322	95,769	5,463	32,973	8,908	43,368
June 29	4,957	4,854	223,883	14,500	92,333	5,325	37,762	8,828	46,447
July 27	4,926	4,896	223,756	14,535	88,626	5,817	44,316	8,217	49,517
August 31	4,833	4,911	227,132	15,014	87,217	5,630	53,134	8,539	53,173
September 28	4,778	4,829	223,043	14,675	85,324	5,632	59,827	8,172	57,657
October 5	4,737	4,865	221,782	15,340	85,409	5,687	62,214	8,194	58,611
October 12	4,737	4,867	221,931	14,933	86,585	6,166	63,412	8,454	59,753
October 19	4,733	4,779	220,774	14,874	85,930	5,666	64,761	7,509	60,512
October 26, 1946	4,730	4,758	.....	14,863	86,423	5,710	[1]65,499	7,728	60,872
October 27, 1945	4,273	4,791	[5]226,397	15,347	74,514	4,919	44,827	8,982	46,547
Change:									
In Week	—3	—21	—1,157	—11	+493	+44	+738	+219	+360
In Year	+457	—33	—5,623	—484	+11,909	+791	+20,672	—1,254	+14,325
In Year	+10.7%	—0.7%	—2.5%	—3.2%	+16.0%	+16.1%	+46.1%	—14.0%	+30.8%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922 due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, October 20, 1945.

☆ Oklahoma

Cotton County Prospect Logs Saturation from Two Sands

New oil pool likely in Cotton County; wildcat may open pool in Garvin County; Wayne offset has gas flow; Magnolia gets producer on southeast end of West Edmond field; Cromwell sand pool opened in Seminole County; new gas pool brought in south of Chandler in Lincoln County.

Cotton County: A likely pool opener is D. H. Bolin's Collins 1, SW SW SW 33-2s-9w. The well, 8 miles east of Walters and a mile from the Stephens County line, logged good saturation in samples from 2 sands; one at 2157-73 feet, and the other at 2210-24 feet. A good "kick" was reported on electrical log. Total depth of the wildcat is 2608 feet, and pipe has been set at 2300 feet. The well is surrounded by a block held by T. Harris, in Sects. 30, 31, 32 and 33-2s-9w, and Sects. 4 and 5-3s-9w. A 3505-foot dry hole is in NW NW NE of Sect. 33, and a 2486-foot duster in SW SW NW of Sect. 32.

Garvin County: Max Pray and R. L. Bauman's Martin (Rose) 1, CNE NE 1-4n-4w, in the northern sector of the county, had 41 feet of well-saturated Wilcox sand and is drilling below 10,091 feet, but operators will test the prospective pool opener from 10,051-91 feet. Bromide dense was encountered at 9780 feet, and lime at 9956 feet. A fault is known to exist east of the well, and geologists believe this condition may develop into quite a trap for a sizable pool.

McClain County: J. E. Trigg and J. R. Porter were testing White 1, NW SW SE 24-5n-2w, Southwest Wayne pool offset, after the well showed dry gas from the Pennsylvanian zone through perforations at 6434-60 feet. The well, an east offset to the discovery, was washed in, swabbed dry, and showed 1 million cubic feet of dry gas, with no oil, distillate or water. Testing continues. Hunton lime was topped at 6606 feet.

Oklahoma County: Magnolia Petroleum Company has brought in Housel 1, southeast end of the West Edmond field. The well flowed 63 barrels of oil in 3 hours from the Hunton lime at 7160-75 feet, and on a 24-hour gauge made 484 barrels of 41-gravity oil. Gas-oil ratio was 1051/1, with tubing pressure 15 pounds. Total depth is 7245 feet, with 7-inch casing set at 7227 feet. The producing formation was topped at 7135 feet.

Seminole County: Sam Rhoades and Smith-Horton Drilling Company have opened a Cromwell sand pool south of the Wewoka Lake pool with Letka 1, NE NE NE 32-8n-7e. On a drill-stem test the well flowed at the rate of 10 barrels of oil per hour from 3272-89 feet. Gas showed for 30 minutes, gas and mud for 20 minutes, and oil in 10 minutes. At the end of the test 400 feet of oil was recovered and operators are still testing. This strike strengthens the belief that there are still many undiscovered pools in shallow pays that were passed up in the early days of the Greater Seminole area. Geology on this test was worked by R. C. Tuttle of Tulsa.

Lincoln County: Mealy-Wolfe Drilling Company et al apparently opened a new gas pool with Stone 1, SW NW 27-14n-3e, south of Chandler. The well flowed 8 million cubic feet of gas from the Cleveland sand at 3395-420 feet. Total depth is 3420 feet in the Cleveland, and operators are testing. The test is about 3 miles from the East Warwick pool.

☆ Kansas

Rooks County Prospect Near Barry Pool May Be Strike

Rooks County wildcat looms as oil pool opener; possible pool opener in Pratt County will be tested; Boyd pool may be extended northwest; Skelly wildcat to retest show of oil in Stalnaker sand.

Rooks County: Doley Oil Company's Anderson 1, SW SW NW 23-10s-19w, about 4 miles south of the Barry pool, apparently will be an oil pool opener. With total depth at 3699 feet in the Arbuckle lime, the test reported spotted oil shows in the Topeka lime from 3115-24, 3248-53, 3272-76, and 3307-10 feet; in the Lansing lime, topped at 3531 feet from 3380-91, 3400-02, 3409-14, 3428-36, and 3444-47 feet. Simpson shale was topped at 3650 feet and the Arbuckle lime at 3679 feet. A show of oil was reported also in the Arbuckle at 3699 feet. Five-inch casing was set at 3550 feet, and operators are now waiting for cement to set before testing.

Pratt County: The Ohio Oil Company's Stalcup 1, wildcat in NE NE NE 15-26s-12w, will be tested in the Lansing lime from 3677-84 feet. The well recovered 75 feet of oil-cut mud on a 15-minute drill-stem test in the formation, topped at 3632 feet. Other markers: Simpson sand, 4257 feet, and Arbuckle lime, 4306 feet. Total depth is 4356 feet.

Barton County: The Boyd pool may be extended ½-mile northwest by C. P. Ballas et al's Keenan 1, CNL NW NE 28-17s-14w. The well bailed at the rate of 1 barrel of oil an hour natural from 3356-68 feet in the Arbuckle lime. Operators will acidize before taking potential.

Barber County: Skelly Oil Company is plugging back to 3715 feet to test a show of oil in the Stalnaker sand at Harbaugh 1, wildcat in SW NE NE 15-33s-112w, 2 miles east of the Boggs oil pool, which was opened by the company. The Arbuckle lime was found dry at 4924-50 feet. Discovery well of the Boggs pool produces from the Simpson sand, which is above the Arbuckle.

Unit Operation Sought

A petition to permit unit operation and repressuring of the Medrano sand zone at the west end of the Cement field, Caddo County, Oklahoma, was filed with the State Corporation Commission. Hearing will be held November 7.

Wells Completed in United States in Week Ended October 26, 1946

State or District	FIELD COMPLETIONS: New Wells: Oil	Dist.	Gas	*Input	Dry	Total	Old Wells Deepened	EXPLORATORY COMPLETIONS: Oil	Dist.	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	This Week 1945
Alabama															2
Arkansas	1				1	2							2	4	2
California	26		1			27	1		1		5	6	34	36	31
Colorado	6					6							6	5	7
Florida															1
Illinois	38				14	52		3			17	20	72	57	31
Indiana	4				5	9					2	2	11	10	7
Kansas	21		4		6	31	2	1			11	12	45	31	40
Kentucky	1		2		2	5							5	9	16
Louisiana	17	1	3		6	27			1		4	5	32	29	22
N. Louisiana	10		3		4	17					3	3	20	18	11
S. Louisiana	7	1			2	10			1		1	2	12	11	11
Michigan	4		1	4	3	12				1	4	5	17	13	14
Mississippi											1	1	1	7	3
Montana	6					6					1	1	7	2	12
New Mexico	8		1			9					1	1	10	9	10
New York	16			10		26							26	25	25
Ohio	7		17		3	27					2	2	29	30	11
Oklahoma	47		2		14	63	1	1			17	18	82	74	24
Pennsylvania	27		6	15	1	49							49	50	51
Texas	74	5	7		26	112	1	5	2		28	35	148	132	124
E. Tex. Bor. Co.'s	2		4			6					2	2	8	3	3
Rest of E. Texas	7					7							7	9	7
North Texas	13				15	28					9	9	37	35	31
W. Central Texas	5		1		2	8		1			3	4	12	8	8
West Texas	28				5	33					3	3	36	34	32
Texas Panhandle														8	5
G. Coast, Upper	9				2	11		1			5	6	17	8	5
G. Coast, Lower	8	5	1		1	15		2	2		2	6	21	16	22
Southwest Texas	1				1	2	1	1			3	4	7	7	9
S. Central Texas	1		1			2					1	1	3	4	2
Utah											1	1	1		
West Virginia	3		4			7							7	5	21
Wyoming	2				1	3					1	1	4	3	17
Total U. S.	308	6	48	29	82	473	5	10	4	1	95	110	588	531	471

* Includes salt water disposal wells.

☆ Illinois Basin

McClosky Lime Area Opened In Wayne County, Illinois

McClosky lime area opened in Wayne County, Illinois; Hamilton County prospect sets pipe to test Aux Vases; Jasper County wildcat on production test; Marion County Omega dome wildcat slated; field opened in Henderson County, Kentucky.

The Texas Company's Hines 1, SE C 1-1s-9e, Wayne County, 4 miles south of the Bennington pool, has opened a new area with McClosky lime production from pay at 3255-63 feet. The well initialed 474 barrels of oil in 18 hours natural on swab and flow gauge.

Hamilton County: Inland Producers and others have set pipe to test Aux Vases sand at 3159-74 feet at Biggerstaff 1, NE SW SW 5-6s-6e, a mile west of the Hoodville pool. On 1-hour drill-stem test, the well recovered gas in 20 minutes and 2380 feet of clean oil.

Lawrence County: McCummings Oil Company's Updike 1, W½ SW SE 25-5n-13w, wildcat, has set pipe for test of McClosky lime at 1721-27 feet. The well is about 4 miles from production.

Jasper County: J. W. Rudy's Dewhirst 1, SE NE SE 16-5n-9e, wildcat, is on production test after perforating casing at Rosiclare 3109-27 feet.

Marion County: Paul Doran is preparing to drill Miligan 1, SW SW SE 16-3n-4e, wildcat on the Omega dome structure. The well is nearly a mile from the site of a wildcat attempt in 1939.

Moultrie County: Ben J. Taylor's Hardinger 1, SW SW NE 21-12n-6e, wildcat 7 miles west of production in the Mattoon pool, was shut down after a 65-quart shot in Aux Vases sand at 1933-44 feet. The shot was reported to have increased the water content and decreased the oil content of the hole.

Coles County: J. A. Kull's Corbin 1, SE SE SW 35-13n-7e, regarded as a possible extension north for the Mattoon pool, was shut down after preliminary tests of Rosiclare at 1919-27 feet. The well may be abandoned.

Kentucky

The Carter Oil Company's Adams 1, 4-N-23, Henderson County, 2 miles southeast of the Dixie pool, has opened the Tunnel Hill field with Cypress sand production at 2230-44 feet. On initial test, the well pumped 288 barrels of oil natural in 24 hours from the pay.

API Production Division Meetings Are Scheduled

Dates for 1947 spring meetings of three district organizations of the Division of Production of the American Petroleum Institute have been set as follows:

Eastern District, William Penn Hotel, Pittsburgh, Pa., April 16-18, Chairman R. L. Anderson, Columbian Carbon Company, Charleston, W. Va.

Pacific Coast District, Biltmore Hotel, Los Angeles, May 15 and 16, Chairman M. W. Morris, Standard Oil Company of California, Los Angeles.

Mid-Continent District, Herring Hotel, Amarillo, Texas, May 22 and 23, Chairman H. S. Kelly, Phillips Petroleum Company, Bartlesville, Okla.

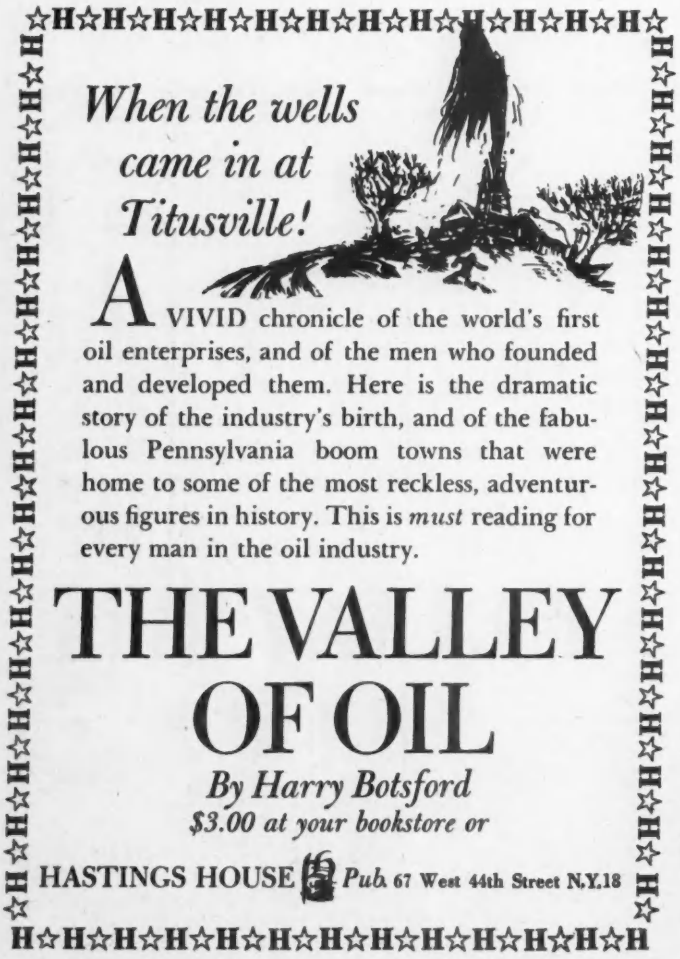
☆ West Texas

Ward County Wildcat Rated Prospective Glorietta Strike

Ward County wildcat shows promise of Glorietta production; Coopwood sector of Fullerton district bolsters outlook for major producing area in the Clear Fork; northwest edge test in TXL field correlates low on Ellenburger; Devonian production in Wheeler field extended ½ mile east; Reeves County discovery in Wolfcamp will make commercial well.

Ward County: Stanolind Oil & Gas Company's Sealy-Smith 1-B, C NE NE G&MMB&A 81, Block A, 2½ miles east by south of regular Permian production, was rated as a prospective discovery, having logged effective oil saturation and porosity at 4815-80 feet in Glorietta, topped at 4820 feet with elevation of 2626 feet. A drill-stem test was pending. It is on a 4648-acre lease, and Gulf Oil Corporation has the only close-in leases.

Andrews County: Mid-Continent Petroleum Corporation's University 2-15, C SE NW Sect. 42 and a south offset to its Devonian discovery for the South Fullerton-Devonian area, flowed 21 barrels of oil hourly after using mud acid through Clear Fork perforations at 6900-7055 feet. It is 1¾ miles northwest of 5 flowing wells from this zone, and the intermediate acreage is considered proved. The above well was plugged back from barren Devonian, topped at 8728 feet, or 163 feet low to the discovery. Mid-Continent's Lotus Oil Company 3, C NW SE PSL 17, Block A-48, northwest outpost, proved that the Clear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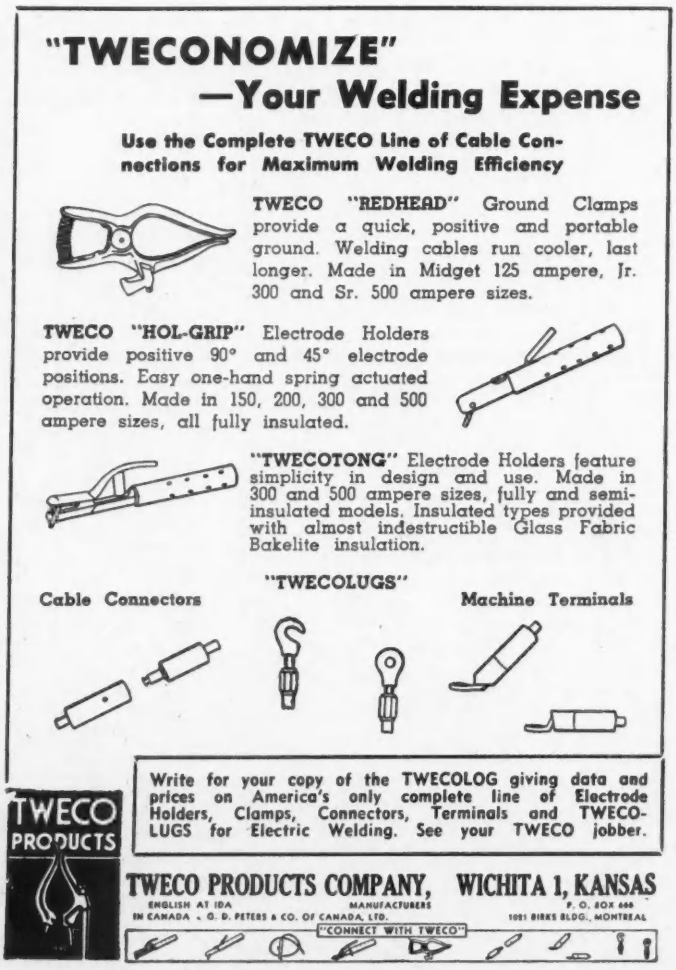
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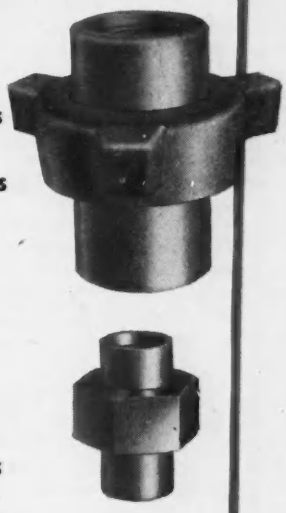

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Fork is productive along northwest-southeast trend for 3½ miles in flowing at a rate of 40 barrels of oil hourly when tester was used at 6850-6970 feet, with elevation 3253 feet, but it will continue to the Devonian. Between 60 and 80 proved locations for Clear Fork production are now on tap in this area, while it may swing north and bypass the Fullerton "8500" field and link with the original Fullerton field, thus involving several hundred new wells. This Clear Fork area yields sour crude, according to purchaser's classification.

Mid-Continent's Culberson 1, C SW NW PSL 10, Block A-47, wildcat, was abandoned at 7630 feet, having recorded low structural position in entering the Tubb at 6800 feet with elevation 3312 feet. Pat Marr and Grady H. Vaughn spudded 5 tests on separate short-term leases on same date to the north of this prospect, but may only drill 1.

Bedford Pool: Shell Oil Company and The Texas Company's Ratliff-Bedford 4, 1865 feet southwest of production, entered Ellenburger at 11,155 feet, or 146 feet low, and was drilling at 11,175 feet with sufficient pay above the water table to make a producer. The partnership's Ratliff-Bedford 3, northwest outpost, is also structurally low in drilling at 10,830 feet, but passed up oil flow from the Devonian.

Block 12 Field: Phillips Petroleum Company's University 1-O, 1¼ miles west by south of Clear Fork production and a failure in this zone, tested sufficient gas at 8246-8306 feet and at 8307-8500 feet in Devonian, topped at 8253 feet, with elevation 3307 feet, to justify setting pipe for production test. The Atlantic Refining Company's University 1-E, a mile northwest of this prospect, made a better showing in the Devonian, topped at 8450 feet, with elevation 3296 feet, and was drilling at 8685 feet. Lease expirations on November 14 will prevent other tests in the area.

Reeves County: Argo Oil Corporation's Roberts 1, wildcat and 21 miles northwest of production, flowed by heads on preliminary test of open hole at 9895-11,990 feet, having plugged back from 14,073 feet in Pennsylvanian. The fluid column is near the 9000-foot level, and apparently no formation water has appeared. This wildcat precipitated a major lease play when it encountered oil in the Wolfcamp, which was topped at 10,120 feet, but no drilling obligations were assumed by lease purchasers.

Kent County: Humble Oil & Refining Company's Elkins 1, ¾ mile northeast of its Ellenburger discovery of the Polar field and 20 feet lower structurally, flowed 240 barrels of 40.9-gravity oil and 120 barrels of salt water initial through ¾-inch choke after acidizing perforations at 7795-7825 feet. The company is starting Blair 1, C NW SW H&TC Ry. 44, Block 5, 1½ miles south of a failure drilled after the discovery and on a separate structure.

Yoakum County: Amerada Petroleum Corporation's Tannehill 1, ¾ mile northwest of Devonian production in the Jones Ranch field, Gaines County, headed oil and gas briefly when given open hole test at 11,395-11,438 feet, then tested mostly mud and water as if the production was from crevice near bottom that caused loss of rotary returns. The well is below the water level established by other producers.

Ector County: Texas' Thomas 6, C NE SW T&P 6, northwest edge of the main portion of the TXL field, was checking about 150 feet low to an east offset Ellenburger producer in drilling Basal Simpson at 9760 feet, thus revealing a sharp turn of the structure to the north. However, this outside test is expected to encounter about 100 feet of Ellenburger pay above the water table in spite of the structural dip. Any shrinkage in the prospective Ellenburger productive area is significant in this field due to the crude reserves involved under each 40-acre well-site.

Samedan Oil Corporation's TXL-Texaco 1, ½ mile east outpost for the Wheeler multi-pay field, entered the Devonian at 8632 feet, or 395 feet low, but a drill-stem test at 8658 feet resulted in gas flow with the well heading oil. No water was encountered. Pipe was cemented at 8632 feet to complete at present depth. Other Devonian wells are producing at lower sub-sea depth, but have thick pay to draw from. This outpost was spudded September 1, and requires production by November 26 to perpetuate the 160-acre lease farmed out by Texas, which retained 1/16 override.

☆ North Texas

Throckmorton County Strike Has Good Flow from Bend

Isolated Throckmorton County discovery registers large flow from Bend; indicated discovery in Haskell County delayed by cement failure; Risch field outpost showing for gasser.

Throckmorton County: Konrad Sztygold et al's Richardson 1, SEc NW TE&L Company 3083 and 5½ miles northwest of the Ewalt field, nearest production, flowed 115 barrels of 40-gravity oil on 3-hour test after using acid through perforations at 4640-50 feet in Bend, topped at 4535 feet with elevation 1371 feet. This wildcat was drilled to water at 5151 feet in Mississippian, topped at 5094 feet. An offset is under way, and owners have scheduled continuous development of their supporting block of 1200 acres.

Jack County: Continental Oil Company's Workman 1, Sect. 54, Block 1, Henderson County School Lands and ½ mile south of the Risch field, was preparing to perforate opposite several zones of gas pay logged in drilling to 5106 feet in Bend, topped at 4320 feet. Gas was encountered in the upper and lower Bend.

Haskell County: Tom D. Humphrey's Chapman 1, indicated multi-pay discovery and 3 miles northeast of the Lawson field, has been delayed by cement failure in trying to complete from Strawn open hole at 4240-48 feet, having plugged back from 5470 feet. Chapman 2, twin northeast offset, was temporarily halted at 2500 feet to await the outcome of the above test. The latter was scheduled to test Canyon saturation at 2550-70 feet, but may be carried to the deeper zone, with the original well plugging back to the shallower.

W. C. Estes and Wagoner's Brunstedt 1, Block 25, J. Scott Survey and 4⅛ miles northwest of the Lawson pool, was preparing to perforate opposite oil saturation at 4070-85 feet, having plugged back from 4710 feet, with 5½-inch at 4100 feet.

Wichita County: The Texas Company's Ed. Foster 2, Stephen Dennison Survey, A-64, semi-wildcat in the Burkburnett Northwest Extension area, was showing for a commercial pumper after nitro shot at 1885-95 feet, having plugged back from barren Ellenburger at 3145-3200 feet.

Wilbarger County: National Associated Petroleum Company and Texas Company's Crouch 1, H&TC Ry. 24, Block 16, 2¼ miles north by west of Tolbert, fulfilled depth contract at 5040 feet, and was making drill-stem test at this level. No shows have been recorded.

☆ East Texas

Cherokee County Test Logs Show of Oil in Glen Rose

Cherokee County test logs nominal oil show in Glen Rose; Basal Woodbine registers small show of oil and gas without water in Leon County prospect; district has 4 active Smackover projects.

Cherokee County: Standard Oil Company of Texas' new Birmingham 1, G. E. Looney Survey and 5 miles south by east of Ironton, was drilling shale at 7910 feet, having passed up nominal oil and gas shows in the Glen Rose, entered near the 6990-foot level. This wildcat will explore the Travis Peak. W. H. Foster's Ellis 1. John Stroud Survey and ½ mile east of Summerfield, is moving in rotary for a Woodbine prospect.

Leon County: United North & South Development Company's Oden 1, W. Martin Survey 7 and 2 miles south of Flynn, recovered 1500 feet of rotary mud cut with gas and a trace of oil when tester was used in Basal Woodbine at 7228-46 feet. The Upper Woodbine also yielded a small show of oil and gas. It will continue to the Edwards Lime objective.

Houston County: John Ivy and W. T. Moran's Murray 3, John Durst Survey, was drilling shale at 8360 feet, having logged a gas showing in Woodbine before reaching salt water.

Smackover Tests: Amerada Petroleum Corporation et al's Coke Unit 2, Coke field failure in the Rodessa series. Was drilling at 8490 feet in dry Travis Peak, topped at 8345 feet. Humble Oil & Refining Company's McKnight 1, northeast edge of the Hawkins field and also in Wood County, was drilling lime and shale at 9520 feet, with the Travis Peak due near this level. Shell Oil Company's Goldsmith 12, offsetting Paluxy production in the Quitman field, was fishing at 6330 feet in Paluxy, topped at 6244 feet. In Freestone County, The Texas Company's White 1, west outpost for the Fairfield gas distillate field, was drilling shale at 11,390 feet and below the Travis Peak, which was entered at 7905 feet.

Henderson County: M. B. Chastain and Crow Drilling Company's Young 1, Tri-Cities field, succeeded in killing burning gas flow after 12 days, and is having difficulty in controlling production until new rig is installed. This well produced in excess of 15 million cubic feet of wet gas daily from Upper Rodessa (Bacon) perforations at 5580-7610 feet.

Smith County: Delta Drilling Company's Boynton-Magnolia 1, J. J. Smith Survey and on a geophysical prospect centering east of the Mount Sylvan field, entered the Austin chalk near the 4600-

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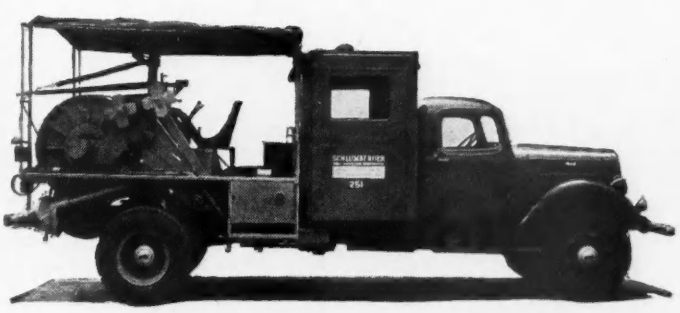

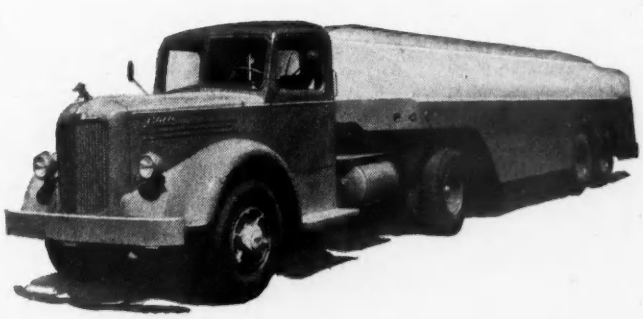

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floor level, with elevation of 528 feet, and was drilling at 4650 feet. Humble's Clark 1, northwest outpost for the Mount Sylvan field. Is showing for a high well in entering the Commanche lime at 5804 feet, with elevation of 404 feet, and was drilling lime at 6390 feet. Humble has made location for Jackson 1, Thomas Horsley Survey, for a southwest outpost and in Van Zandt County.

Marion County: Magnolia Petroleum Company-Tide Water Associated Oil Company's Hall 1, Laseter area, was drilling near the base of the Duck Creek shale, below 4505 feet. It is a mile northeast of the same operators' Orr 1 discovery, and the hole is reported checking closely with Orr 1.

Panola County: Stanolind Oil & Gas Company's No. 2 Carthage Gas Unit 14, 6½ miles northeast of Carthage, was finaled as a dual producer at 6485 feet, and is rated good for 120 million cubic feet of gas from the Upper Pettit at 6015 feet, and 20 million cubic feet of gas from the Lower Pettit at 4950 feet.

Gulf Oil Corporation abandoned S. B. Wallace A-1, wildcat 4½ miles east of Carthage production in the A. M. McLaughlin Survey, which apparently condemns 1000 acres of surrounding leases. The wildcat went to 6749 feet, missing the Hill porosity. Pettit was topped at 5925 feet.

East Texas Property Sold

Producing properties of O. R. Cooper of Tyler and associates in the East Texas field have been purchased by the Slaughter & Perryman interests, an affiliate of General American Oil Company, Dallas, for $664,000 cash or $41,500 per well. This deal involves five leases, with 16 flowing and pumping wells on 15½ acres. Half the wells are on the Compton 1.31-acre tract in the townsite of Kilgore.

Ramsey Stock Sold

Stanolind Oil & Gas Company purchased all the stock of Ramsey Petroleum Corporation for approximately $3,250,000. This includes the corporation's producing properties in the Cement field, Caddo County, Okla., and some production in Pauls Valley, East Pauls Valley, and Hoover pools, with a present daily net production of about 1350 barrels. Ramsey also owns some 5000 acres of non-producing leases in central and western Oklahoma.

☆ Southwest Texas

Second Well Completed in North Sun Extension Area

Second well in North Sun southeast extension area completed; sidewall samples taken in recently abandoned wildcat in Jim Hogg County; casing set in wildcat northeast of Oilton; Realitos area wildcat coring after making 2 drill-stem tests.

Starr County: Sun Oil Company's Lee M. Green 2, southeast extension area of North Sun field, has been completed as the second producing well in this new opened area. On potential the well flowed 119.37 barrels of 48.3-gravity oil daily through 9/64-inch choke with tubing pressure 725 pounds, casing pressure 1000 pounds, and gas-oil ratio 675/1. Production is from open hole at 4729-32 feet. This producing area was opened by Sun's Green 1, completed in July. The area is called part of the North Sun field, though it is 2 miles southeast of production in that field.

Jim Hogg County: Newman Bothers Drilling Company & F. A. Callery have gone back into their recently abandoned Pena 1 and are taking sidewall cores. This wildcat, in the Patel area about 19 miles southwest of Hebbronville, was drilled to total depth of 2977 feet.

Webb County: Killam & Hurd's D. G. Garcia 1, wildcat ½ mile northeast of Oilton in the Kilam area, has set casing after drilling to 2019 feet. A drill-stem test at 1952-57 feet recovered 4 feet of oil-cut mud with no working pressure in 45 minutes. A drill-stem test at 1992-96 feet recovered salt water. The test is in Block 8 of Survey 786, A-195.

Duval County: Hewit & Dougherty's Peter McBride 1, wildcat 2½ miles southeast of Realitos, cored below 5382 feet after making 2 drill-stem tests. A test at 5366-69 feet recovered in 15 minutes 20 feet of oil and mud with no working pressure. Another test at 5361-74 feet recovered 70 feet of oil- and gas-cut mud.

☆ South Central Texas

Atascosa County Wildcat Near Rossville May Set Casing

Casing may be set in Rossville wildcat; Charlotte outpost being completed; deep test near Gonzales below 5300 feet; Uvalde wildcat drills in Glenrose; Medina County test cores after breakdown.

Atascosa County: Harris S. Stahl's Suzanna Pratt 1, wildcat 1½ miles southwest of Rossville, has been shut down after making a drill-stem test and may set casing. The drill-stem test, made at 2370-2407 feet, recovered 80 feet of oil- and gas-cut mud in 15 minutes. Total depth is 2407 feet. This test is in the F. de la Garza Survey 46, A-277.

The Texas Company's J. L. Gates 1, outpost 1320 feet north-northwest of the Love 1, southeast extension well for Charlotte field, is being completed in open hole at 5148-52 feet. This test cored a sand with show of oil at 5146-52 feet and 5½-inch casing was then set to 5146 feet after deepening to total depth of 5152 feet.

Gonzales County: Quintana Petroleum Company et al's Alfred Speickermann 1, wildcat 7½ miles south-southwest of Gonzales, drilled below 5300 feet with no other data released. Projected depth is 14,000 feet. It is on a 145-acre tract 2600 feet from the northwest line and 7500 feet from the northeast line of William Newman Survey A-362.

Uvalde County: Bennett & Sorrell's Mary Rehm 2, wildcat 10 miles southwest of Sabinal and just west of the Medina County line, is below 2980 feet in the Glenrose. This test is in Peter Fricker Survey 870½. Projected depth is 4500 feet.

Medina County: Charles H. Wagener's Griesenbeck 1, wildcat 1 mile south of Pearson Switch, is coring after a breakdown just below 1016 feet.

☆ Lower Texas Coast

Nueces Gas Discovery Gauged; Saxet-Deep Outpost Plugs Back

Gauge of Nueces gas discovery taken; Saxet-Deep outpost test plugs back for shallow sand completion; Magnolia's 2 outposts south of La Gloria testing; drill-stem test made at Armagosa west outpost; wildcat in Kingsville area junked.

Nueces County: Jack Little, Trustee's Emma Rieber 1 discovery a mile north of Richard King field, flowed 35 million cubic feet of dry gas daily on open flow with shutin pressure 2055 pounds. Production is from perforations at 5150-55 feet and total depth is 5797 feet. On ¼-inch choke the well flowed 2,895,000 cubic feet of gas daily; on ⅜-inch choke, 5,800,000 cubic feet daily; and on ½-inch choke, 9,040,000 cubic feet daily. This discovery is 467 feet out of the southwest corner of a 400-acre tract in the Casa Blanca Grant, about 7500 feet from the west line and 6000 feet from the northwest line of Nueces County.

Houston Oil Company & Republic Natural Gas Company's W. W. Walton 1, outpost 4575 feet northwest of production at Saxet-Deep field and on the east flank of the old Saxet field, has plugged back to 3600 feet for shallow sand completion after failing to find production in the Saxet-Deep pay sands. Total depth was 8506 feet and 5½-inch casing was set to 7074 feet to test a deep sand. Salt water was tested in perforations at 6992-95, 6982-86, and 6991-92 feet before plugging back for completion.

Brooks County: Magnolia Petroleum Company's O. Zimmerman 1, outpost a mile south of production at La Gloria field, has set 7-inch casing with total depth of 8702 feet.

Magnollia's Cosby 1, about ⅔ mile south of La Gloria production, cleaned with 280 pounds working pressure from perforations at 7970-80 feet.

Jim Wells County: H. B. Ownby Drilling Company's Lester Moore 1, outpost ½ mile west of Armagosa gas field, ran a drill-stem test at 4998-5010 feet and with 500 feet of water cushion, recovered in 4 minutes the water cushion and 120 feet of gas-cut mud with 2 pounds working pressure. After this drill-stem test, hole was cored below 5040 feet.

Kleberg County: Stanolind Oil & Gas Company's J. O. Johnson 1, wildcat 3 miles southeast of Kingsville and 2 miles northwest of Ricardo field, has been abandoned at 8895 feet after being unable to clean hole following a blowout.

☆ Upper Texas Coast

West Fairbanks Area Wildcat Abandoned After Many Tests

West Fairbanks area wildcat abandoned after numerous tests; flow gauged at Saratoga east flank outpost; confirmation test at Tide Haven testing from new sand; production at Livingston moving southwesterly; deep production indicated at Altair northwest outpost.

Harris County: Sun Oil Company has abandoned Independence-Gardens Unit 1, wildcat in the West Fairbanks area,

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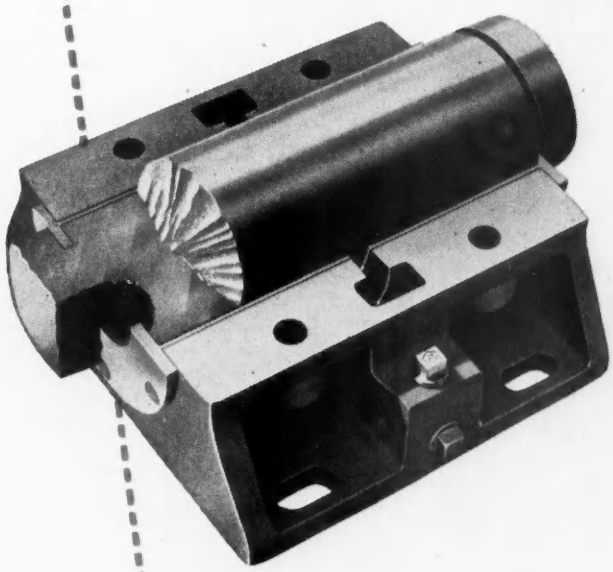

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at total depth of 8240 feet. Six tests were conducted in the hole after 5½-inch casing was set to 7646 feet, all failing to give any evidence of oil or gas. These drill-stem tests were made at 7566-76, 7061-66, 6886-90, 6800-08, 6802-11, and 6807-15 feet. This dry hole is in W.C. RR. Survey, Sect. 6, Block 1.

Hardin County: L. M. Josey et al's Caswell Trust 4, south outpost on the east flank of production at Saratoga field, on initial test gauged 214 barrels of 39.2-gravity oil daily through 10/64-inch choke with 825 pounds tubing pressure and 1050 pounds pressure on casing and gas-oil ratio of 984/1. Total depth is 6365 feet with casing set to 6165 feet and perforated for completion at 6025-95 feet.

Matagorda County: Magnolia Petroleum Company's Live Oak 2, confirmation test 1512 feet north of the Live Oak 1 discovery well at Tide Haven field, has tested oil and salt water from a new higher sand for the field. The test was made of perforations at 8362-78 feet where the well started flowing in 45 minutes through the drill stem with 550 pounds pressure, but slowly dropped off to zero. When the tool was pulled a recovery of 630 feet of oil and 7700 feet of salt water was made. These perforations were squeezed and other tests were to be made. Total depth of the hole is 10,000 feet with 7-inch pipe set on bottom.

Polk County: Production in the Livingston pool has been moving steadily southwest. Newest producer in this area is Frank W. Michaux's W. T. Carter & Brothers Lumber Company 6, located on a 588-acre tract in A. Viesca League. On potential the well flowed 114 barrels of 37-gravity oil daily through ⅛-inch choke with 825 pounds flowing pressure on tubing and 1050 pounds pressure on casing. Gas-oil ratio was 600/1. Total depth is 7038 feet with casing perforated at 7024-30 feet for completion.

Colorado County: The Superior Oil Company's Myra Pryor 4-A, northwest outpost test at Altair field, has indicated deep production for the field. With 7-inch pipe set on bottom at 11,366 feet, perforations for initial test were made at 10,238-266 feet where it developed a slight gas flow and recovered a small amount of gas-cut mud when the tool was pulled. New perforations were then shot at 10,266-286 feet where a slight gas blow developed and then died. After the well was swabbed, it started flowing gas, mud and salt water. Other tests were to be made following this last try.

☆ South Louisiana

Bayou Mallet Field Receives 5500-Foot West Extension

Bayou Mallet South field extended 5500 feet west; Egan has new producer; wildcat located along Wilcox trend; Alliance area discovery given potential; new producing sand in Section 28; new Cockfield producing area indicated in Beauregard Parish.

Acadia Parish: Production at Bayou Mallet South field has been extended 5500 feet west by Amerada Petroleum Corporation's Henry Bieber et al 1, SW¼ NW¼ 26-7s-1e. This outpost flowed on potential 162 barrels of 40.4-gravity oil daily through 5/32-inch choke with 2900 pounds tubing pressure and gas-oil ratio of 3685/1. Total depth is 9710 feet with 5½-inch casing set to 9708 feet and perforated for production at 9630-34 feet.

Sun Oil Company and Sohio Petroleum Company's Freeland Pool 4, in the northeast corner of 29-9s-1w, has been completed as a new oil well at Egan field. On potential this well flowed 203 barrels of 34.5-gravity oil daily through 8/64-inch choke with 1400 pounds flowing pressure on tubing. Total depth is 10,798 feet with casing perforated for completion at 10,752-762 feet.

Evangeline Parish: Phillips Petroleum Company has located a wildcat 7 miles southwest of production at Mamou field. This Sparta-Wilcox trend test will be the Vidrine 1.

Jefferson Parish: The California Company's Brady 4, Unit 4, discovery well in the Alliance area, flowed on potential 60 barrels of 49.7-gravity condensate along with 3,660,000 cubic feet of gas daily through ¼-inch choke. Total depth of the hole is 14,187 feet, plugged back and perforated for completion at 9072-82 feet.

St. Martin Parish: Gulf Refining Company's Ruth Fleming et al 3-A, in 28-9s-6e, at Section 28 field, has been completed in a new producing sand for the field. Production is from perforations at 10,698-742 feet where a gauge of 491 barrels of oil daily through 3/16-inch choke with 1600 pounds flowing pressure on the tubing was made on potential. Total depth is 13,123 feet and 7-inch pipe is set to 11,133 feet.

Beauregard Parish: Barnsdall Oil Company's Long Bell Lumber Company 1, wildcat 4 miles north of Gordon field, has indicated production in the Cockfield. Cores were taken at 8150-8262 feet in the Cockfield and hole was reamed to 8228 feet for a drill-stem test that yielded 20 stands of 46-gravity oil in 20 minutes. Hole was conditioned and cored ahead following this test. Projected depth is 13,000 feet.

☆ North Louisiana

Prospective Discoveries in Two Parishes Being Tested

Prospective discoveries testing in Franklin and Catahoula parishes; Bossier Parish discovery improving production slightly on pump.

Catahoula Parish: Lyons & Prentiss and Penrod Drilling Company were preparing to make a production test in P. L. Mitchell 1, C NW NW 36-8n-7e, possible oil discovery 4 miles south of Riverfield. The well is at 9471 feet. A test of the Tuscaloosa (or Pilot) sand from 9322-46 feet recovered 44-gravity oil and oil-cut mud. Further sand was encountered at 9393-9407 feet but carried salt water. The area is tightly leased, but some royalty trading is active.

Franklin Parish: Atlas Oil & Refining Company's Ayer Timber Company 1, SW NW 26-14n-9e, is another prospective gas-condensate discovery. The test flowed an unestimated volume of gas with condensate into pits after a test was made of perforations from 6572-86 feet opposite the Tuscaloosa sand. Shutin pressure was 2400 pounds. Total depth is 7037 feet, with 5½-inch production casing set to 6639 feet.

Atlas has another wildcat active in

Geese and Golden Eggs

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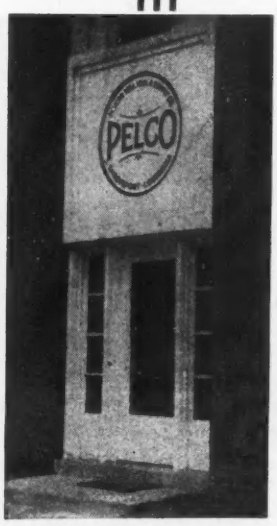

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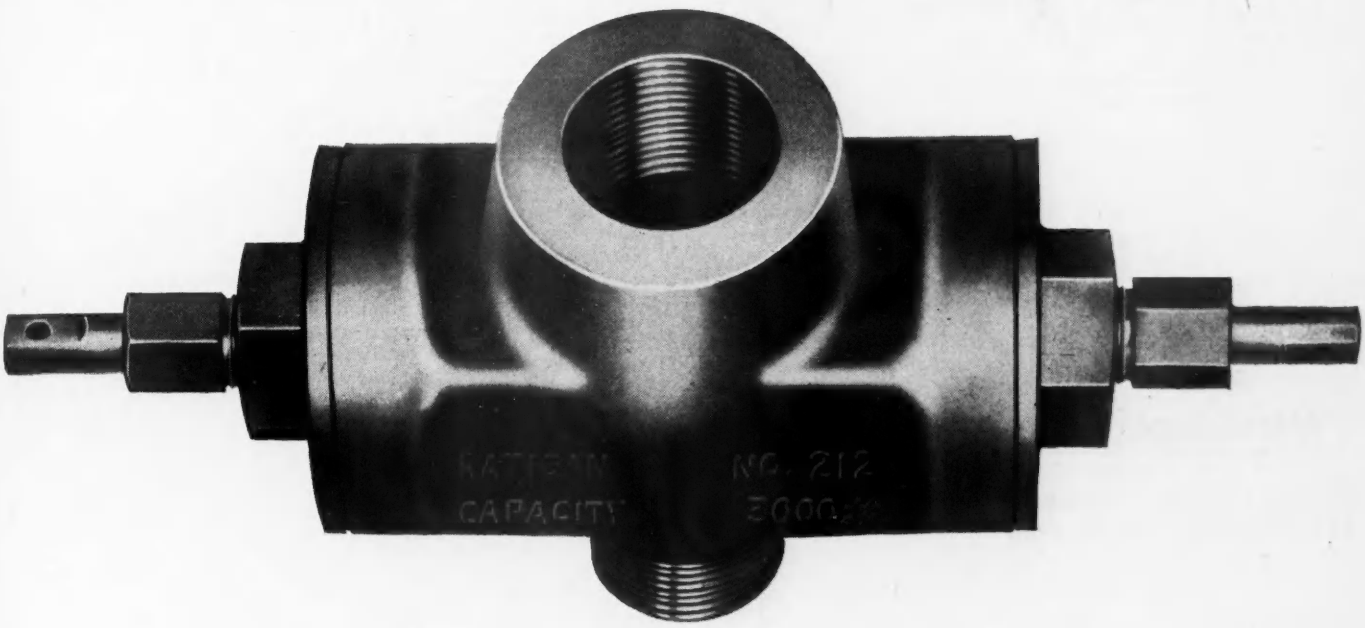

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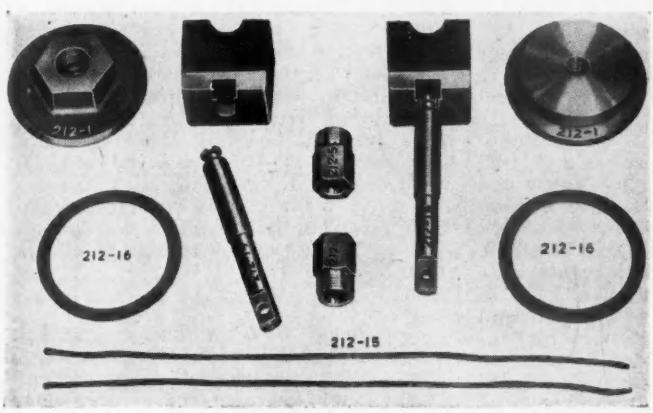

The Ratigan No. 212 Blowout Preventer also can be used for swabbing or running rods in wells that head or flow in the course of operations. It is designed for maximum safety and convenience in operation and assures operators of efficient, dependable performance at all times. The No. 212 Blowout Preventer is manufactured in 2½" and 3" sizes. The 2½" size is supplied both plain and upset. The 2½" plain can be furnished in double female, but if male and female are required, a short nipple can be used to accomplish this. The 2½" upset can be made in male and female or double female. The 3" size is supplied male and female only; however, the male connection easily can be converted to female by installing a 3" collar, thus making a double-female unit. Two of these blowout preventers of the same size, with a nipple of any required length in between make a very efficient unit for swabbing.

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the Parish, H. B. Cox et al 1, C NE NW 9-15n-9e, which topped the chalk at 3975 feet and is drilling below 3990 feet.

Concordia Parish: The California Company is preparing to complete Mrs. Hanna Harris Sellards 1, 1-9n-10e, northeast section of the Lake St. John field. A Massive oil sand was drilled from 9122-24 feet and the well continuously cored to 9158, with base of sand at 9157 feet. Porosity ranged from 25 to 39 percent, rating among the highest in the field's reservoir. Total depth is 9159 feet.

Bossier Parish: Barnsdall Oil Company-Sohio Petroleum Company's Carter-Burton 1, wildcat discovery of the Plain Dealing area, C NW NW 26-23n-13w, is producing 57 barrels of 41-gravity oil in 19 hours on pump after being deepened to 3940 feet. Operators have staked a new test in SWc N½ SW 23-23n-13w, ½ mile north of the discovery, as a proposed 3500-foot or Tokio sand test.

☆ Mississippi

Holmes County Tuscaloosa Test Nearing Pay Horizon

Holmes County test holds interest; Brookhaven outpost running production string.

Holmes County: Mid-Continent Development Company's Sam D. Hall 1, SE SE SE 23-13n-3e, Tuscaloosa test, is being watched with interest while drilling below 4678 feet after marking top of chalk at 3790 feet. The test is about 1½ miles northwest of Tinsley field, and surveys have indicated good potential structure. In this area possible pay may be encountered from 4700 feet down. In the same county Skelly Oil Company's W. M. Spann 1, SW SE 22-14n-1w, has completed roads for a test which will drive to the 5000-foot zone, and it is also understood that a test is in prospect for 22-14n-1w. The play is in the north central section of the state, and a discovery would reawaken interest in an area which has been underworked during the past 2 years.

Lincoln County: Crescent Drilling Company's J. F. Vernon, 31-8n-7e, northwest outpost attempt in the Brookhaven field, is running 7-inch casing after driving through the productive Massive sand zone topped at 10,464 feet. Fair porosity and good shows were noted in the section and preparations are being made to test. Sun Oil Company's Fred Smith 1, SWc 5-7n-7e, in Brookhaven, is bottom at 10,420 feet below the Massive sand section after running productive string of casing. A thin section of oil sand was cored at 10,335-38 feet. Brookhaven continues to be the most active field in the state with 13 drilling rigs in operation and 2 locations staked.

Claiborne County: Sun Oil Company's W. R. Hammett 3, 15-11n-1e, salt dome test in the Bruinsburg field, was preparing to whipstock hole after topping chalk at 5632 feet. The hole has been extensively explored and shows of gas have been recovered in a drill-stem test at 1355-1427 and 1526-90 feet. Slight odor has also been observed in the Wilcox section below 2600 feet.

Adams County: The Pure Oil Company's Geo. W. Armstrong 1, SEc 13-6n-3w, in the Carthage Point field, is drilling below 9100 feet with no shows. The Ohio Oil Company's Geo. W. Armstrong 1, SEc 12-5n-3w, wildcat, is below 11,070 feet. Cores from 11,022-32 feet recovered salt water sand with no shows. Coring continued. In the La-Grange field Sohio-Roeser & Pendleton's Parker-Baker 1, NWc 8-6n-2w, was preparing to run swab after well failed to flow. A thin section of saturated sand was recovered in cores from 6214-18 feet in the Wilcox zone, and oil sand was also recovered from the same zone at 4595-99 feet.

Yazoo County: Sinclair-Kingwood Oil Company's M. P. Wilburn 11, SWc NE NW 32-12n-3e, Pickens field, was preparing to make further tests after encountering salt water and oil in the Eutaw zone at 4866-70 feet. Good porosity was noted.

Marion County: Humble Oil & Refining Company's E. A. Ball 5, NWc 20-2n-14e, Hub field, continues to test after recovering good quantities of oil from the productive Massive sand zone at 9117 feet. Humble also has roads complete for its J. R. Tolar 1, SEc 28-5n-19w, Massive sand prospect slated for the 10,000-foot zone.

Alabama

Fifteen operations were in varying stages of development, but only 4 were actually active in the state. In Choctaw County's Gilbertown field, H. L. Hunt's Emma Jones 1, SW SE 20-11n-4w, is working below 4100 feet with no shows. The Carter Oil Company's Rex Alman 2, NE NE 4-10n-3w, Gilbertown, is below 1675 feet.

Marion County: Cullet's Lewis 1, NE SE 23-11n-14, wildcat, is drilling below 530 feet in limestone.

Walker County: Glen D. Rose Oil & Gas Company's First National Bank of Birmingham 2, NW NE 30-12s-7w, is waiting on cement in preparation for acid job, and is at total depth of 3225 feet.

Florida

Gulf Refining Company's State 1, SWc 2-67s-29e, deep wildcat on the Pine Key prospect of Monroe County, is drilling below 12,816 feet in lime and dolomite with no shows reported in last 1500 feet. Gulf's State 1, Lse. 374, 15-17s-27e, is waiting on cement after setting surface casing. The well will go below 10,000 feet and is located about 12 miles west of State 1.

Collier County: Humble Oil & Refining Company's Lee Cypress Co. 1, SW SE 28-27s-29e, scheduled to explore the 10,000-foot zone at Sunniland, is drilling below 5321 feet in lime with no shows reported. Humble's Gulf Coast Realty 9, which is located approximately 1 mile west of the Gulf Coast Realty 8, in C SE 24-28s-29e, is building road and will move in material shortly for another test of the Sunniland area.

Gulf County: The Pure Oil Company's Pick-Hallinger 1, NEc 12-9s-11w, is drilling below 1900 feet. The wildcat is the first to be drilled in the area in more than a year.

Mississippi Park Leased

Lease of 1800 acres of LeRoy Percy state park in Washington County near Hollandale, to Warren Petroleum Company was completed by the State Mineral Lease Commission. Price reported was $5000. The company agrees to begin a test within the next 90 days, and in the event of a discovery of oil or gas, the company will continue with its development of the entire lease. The state retains a ⅛ royalty interest.

☆ Rocky Mountain Area

Lysite Area, Wyoming, Test Develops Gas in Deep Sand

Lysite area, Wyoming, test has gas in deep sand; Madison formation fails to produce for Steamboat Butte test; Lake Creek test abandoned; Elk Springs, Colorado, Weber strike is disappointment; Big Horn County, Montana, wildcat abandoned.

Wyoming

Sinclair Wyoming Oil Company's important test of the Lysite area, Fremont County, has developed gas in a sand between 9652-93 feet. The well is Unit 1, NE NE NW 35-39n-91w, and on drill-stem test of this zone, which probably corresponds to the Shannon sand in the Cody shale (Upper Cretaceous), the well tested at the rate of 7½ million cubic feet of gas per day. This wildcat is headed for Frontier formation at around 11,000 feet on a long anticline which parallels the Owl Creek Mountain Range of Central Wyoming.

At Steamboat Butte, where British American Oil Producing Company's Tribal 6-E, NW NE NW 5-3n-1w, is testing zones below the Tensleep, the Madison formation is an apparent failure. The well topped Madison at 7368 feet and on drill-stem test made 630 feet of water in 1 hour between 7583-7631 feet. The well is now drilling below 7734 feet but probably will be plugged back to test shows of gas and oil logged in the Amsden formation. Amsden was at 7233 feet and tested 4 million cubic feet of gas per day when the formation was drilled. This is the first Amsden production to be found in the Wind River Basin, although this formation produces in several fields in the Big Horn Basin of Northwestern Wyoming.

Hot Springs County: At Lake Creek, on the southeast rim of the Big Horn Basin, Continental Oil Company has abandoned its test of lower formations after testing water in Madison at 4465 feet, total depth. This area has produced some oil in years past from the Frontier section, but deeper horizons showed only water. The well, Government 2, SW SE SW 27-43n-98w, is only 2 miles west of The Texas Company's Amsden discovery made in July at Black Mountain field. The latter well is now pumping at the rate of 250 barrels of oil per day.

Colorado

Continental's Weber discovery at Elk Springs, Moffat County, is a disappointment in that formation after running casing and testing. The Weber was topped at 6087 feet and the well drilled to 6231 feet. On drill-stem test 2 weeks ago between 6144-88 feet the recovery was 1150 feet of water in 1 hour. Tubing was run and the well swabbed at the rate of 370 barrels of fluid, 30 barrels of oil and the rest water. The well probably will be plugged back to shut off bottom-hole water and completed as a small producer. This structure is 40 miles northeast of the Rangely field, which produces approximately 26,000

IMPORTANT NOTICE

Concerning the New Composite Catalog

The 1946-47 COMPOSITE CATALOG, which will be published in two volumes, containing *more than 4000 pages of catalog information* on practically every make of oil field and pipe line equipment, will be ready for distribution soon.

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Already we have addressed letters to those organizations who received copies of the 1943-44 edition enclosing request sheets on which we have asked that the names, titles and addresses of the proper men in each organization be listed. Most of those to whom these request sheets were sent have already returned them, properly filled out. If you received one and have not filled it out, *do so and return it at once.*

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barrels of oil per day from 135 Weber sand wells.

Rio Blanco County: As evidence of the great difference in porosities and permeabilities in the Weber sand of the Rangely field, Stanolind Oil & Gas Company completed its M. C. Hagood 2, C SW NW 15-2n-103w, as an extension well on the northwest side of the field with an initial flow of 665 barrels in 10 hours through ¾-inch choke. Weber was topped at around 6540 feet and the well drilled 180 feet of Weber sand. This is one of the largest producers in the field due entirely to the better sand condition found in this area. Weber on the southeast side of the field has been much harder and tighter and it has been necessary to shoot a number of the wells in this area to get fair producers.

Montana

H. L. Hunt has abandoned a wildcat test of the Nine Mile (Hardin) structure at Kendrick 1, C SE SE 24-1n-34e, Big Horn County, after testing Tensleep formation at 6085 feet and finding water. This field has produced gas for a number of years from shallow sands but has tested only water in lower formations.

☆ California

Wildcat Activity Focused on Southern Section of State

New wildcat locations favor southern part of state; Potrero discovery flows 250 barrels; Newhall wildcat swabs a little oil; 1000-barrel well completed in Midway-Sunset field; Mountain View completion good for 1080 barrels; McKittrick wet gas discovery shut in without a test, shutin pressures being 2390 pounds.

Los Angeles County: An unusually large number of wildcat locations is centered in the southern part of the state, a departure from the recent geographical trend, which has been to the north. Near Castaic, Barnsdall Oil Company is preparing to drill Dodge 1 in 32-5n-16w. To the south, near Newhall, W. W. Bush Oil Company of Long Beach has located Weber 1 in 11-3n-16w, about 1 mile southwest of Shell Oil Company's recent non-commercial discovery on the Braille Institute property. Two miles farther south, in 25-3n-16w, Seaboard Oil Company is swabbing and a small amount of oil in its wildcat, Mission Land 8-1.

Basin Oil Company's new Miocene oil discovery, Standard Brick 1 in 28-2s-14w, off the northwest end of the Potrero field, is flowing about 250 barrels a day of 25-gravity oil through ½-inch choke. According to field reports, additional development will embrace the whipstocking of several wells under an adjacent residential area.

Orange County: In an area which has seen no wildcatting in recent years, Standard Oil Company of California has staked Stanley Community 1 in 33-4s-10w. The location is about 1 mile north of the town of Garden Grove and ¾ mile northeast of a dry hole drilled to 5500 feet 24 years ago by Standard when that depth was a major feat. Deepest well ever drilled in the township, by Shell in 1937, went only to 8600 feet.

In the Huntington Beach area, Hia-

watha Exploration Company has staked Atha 4, a semi-wildcat in 13-6s-11w.

San Mateo County: Attempt of Fred G. Walker and Albert Moynier to obtain production in the San Gregonio district, the scene of sporadic wildcatting for 75 years, has met with failure and operators abandoned Caughey 1 in 20-7s-5w after running electric log. Total depth is 3338 feet. That the area may see a continued flurry of prospecting, however, is evident from the announced intention of an old group, the Elk Hills Oil Pool, to go back into their No. 1 well on the Ormonde property in 14-6s-5w. The well was originally drilled to a few hundred feet over 25 years ago on the strength of oil seeps in the vicinity.

Monterey County: The Texas Company, which recently abandoned Aurignac 1, wildcat near San Ardo in 4-23s-10e, staked Aurignac 2, 1000 feet away. Chanslor-Canfield Midway Oil Company has resumed operations in its San Ardo wildcat in Sect. 6 and is drilling below 7420 feet.

Kern County: Excellent production rates continue to characterize completions in the Santiago area of the Midway-Sunset field. Richfield Oil Corporation completed Leutholtz A-2 in 22-11n-23w flowing 1025 barrels of 20-gravity oil through ½-inch choke. Total depth is 3535 feet.

Another good producer is J. Paul Getty's Mountain View completion, Bowell 18 in 28-30s-29e, which is flowing 1080 barrels of 28-gravity oil and 1 million cubic feet of gas.

Union Oil Company, which recently discovered a new productive area south of the Mountain View field, has abandoned its second try as a duster. Di Giorgio 62-3 in 3-31s-29e was drilled to 4684 feet without showings.

Texas' recent discovery, West Pet 1 in 29-30s-22e, off the southeast end of the McKittrick field, has been shut in without a flow test. The find has the characteristics of a condensate pool. It made 8 million cubic feet on the short flow test and shutin pressures are 2390 pounds.

Richfield Oil Corporation is drilling below 12,550 feet in its Coles Levee field deep test after setting a 7-inch protection string at 12,311 feet.

☆ Ohio

Second Well Completed in South Canton, Stark County

Second well completed in South Canton; South Madison well flowing; Huntington has another large gas well; small gas well in West Brush Creek; West Richland test is failure.

Stark County: Hanley and Bird's E. I. Du Pont 2, first offset to the Young Gas Engine 1, SW SE 16, Canton Township, came in at 1,900,000 cubic feet natural and 2,900,000 cubic feet when shut in after shot. Clinton sand at 4532-4614 feet, had a small pay in the red and a larger pay in the white.

Perry County: Preston Oil Company's C. W. Shaw 1, NE NW 33, Madison Township, drilled through the Clinton, 3256-3298 feet, with 1000 feet oil in the hole. After shot, the well swabbed and flowed 100 barrels in 24 hours. The company will move 1000 feet west for its No. 2 location.

Lorain County: Glen Harmon et al's

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L. C. Hicks 4, Lot 2, Huntington Township, came in at 5 million cubic feet natural to add another large well to the Middle Huntington pool. Clinton sand was reported at 2436-42 feet.

Muskingum County: John Morrow et al, in a ⅓ mile move to the east of Baughman 1, drilled in the Samuel Dedrick 1, NW NW 24, Brush Creek Township, with a natural gauge of 260,000 cubic feet. After a 60-quart shot, the well was shut in at 450,000 feet.

Holmes County: Another attempt to extend the oil production up through the west part of Richland Township ended in failure. The Pure Oil Company's Albert Struthers 1, SE SE 6, had Clinton at 3263-98 feet with only a small show of gas.

☆ Michigan

Livingston County Given Promising Gas Discovery

Livingston County has promising gas strike; Isabella County test is prospective pool opener; Lake County project logs water in test of prospective Monroe pay.

Livingston County: Panhandle Eastern Pipeline Company's McPherson 1, NW SW SE 35-3n-4e, logged 7 million cubic feet of gas in the Salina at 3897-3907 feet for a promising gas field discovery. Panhandle has 30,000 acres leased in the district, where the pronounced "Howell fault" was identified more than 15 years ago but which had never been commercially productive. Pure and Talbot drilled a wildcat on the same ranch in 1934 to 5958 feet, penetrating St. Peter sand at 5825 feet, which carried water at 5845 feet.

While regarded as significant as a potential new gas field, Panhandle is reported greatly interested in the area's potentialities for a gas storage field. The company's Texas-to-Michigan gas lines terminal is about 50 miles from the wildcat producer.

Isabella County: Merrill and Clayton's Maybee 1, NE SE SE 12-15n-5w, wildcat 5 miles west of the old Leaton field, carried 300 feet of oil and 100,000 cubic feet of gas in Dundee at 3773-76 feet for a pool opener prospect. Dundee, topped at 3770 feet, was bottomed at 3784 feet in water formation. Test will be plugged back to 3778 feet and acidized. Sohio Petroleum Company, supporter of the test, has 3 offsets and major acreage in the area.

Lake County: Byron MacCallum's Tope 1, NW SW SW 22-17n-12w, was shut down for orders at 3490 feet after logging water, following testing of a potential pay in the Monroe at 3419-30 feet. Monroe showed up to 700,000 cubic feet of gas but no free oil.

Wexford County: Sun Oil Company will acidize 2 potential pay zones in Dill 1, NE NE SW 28-21n-10w, wildcat. Dundee, logged at 3788 feet, carried oil and water pays at 3824-31 and 3990-95 feet. Test was bottomed at 4020 feet.

Mecosta County: Merrill Drilling Company's Stephenson 1, SE NW NE 12-13n-10w, Sohio farmout, logged Dundee at 3337 feet and carried oil-saturated dolomite at 3490-3520 feet but no free oil. Drilling continues.

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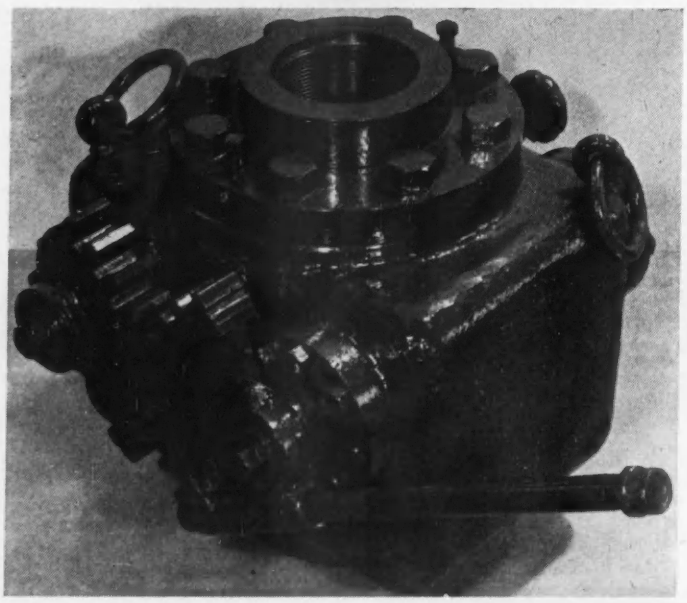

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☆ Canada

Important Wildcats Slated For Central Alberta Area

Two important wildcats have been announced for the broad belt of virgin territory in Central Alberta between the Foothills and Central Plains. Both will test horizons to the Devonian, with likely completion at 6500-7000 feet.

McColl-Frontenac Oil Company's Wetaskawin 1 was staked in LSD 4 11-45-25w4th, while Imperial Oils Limited's LeDuc 1 was staked in LSD 5 22-50-26w4th, about 32 miles north of the Wetaskawin venture. Both were staked on the basis of seismograph work.

Cores from the Lower Cretaceous in 3 Lloydminster Lone Rock area wildcats indicate productive sands more than 25 miles long straddling the Alberta-Saskatchewan border, making the area the brightest prospect yet found on the Western Canadian Plains.

Husky Refining Company of Wyoming has cored a 10-foot sand at 1997-2007 feet, about 117 feet below the Sparky sand, current chief source of Lloydminster 14-gravity oil, opening the prospect of deeper production for the field.

Field production climbed from 6000 barrels in May to 35,000 barrels in September. A dozen completed wells are awaiting the opening of Husky's asphalt plant and expansion of the original Excelsior Petreco plant, which supplies railway fuel. Six rigs are now in operation, with 15 to 20 completions monthly expected, provided casing, which is now in short supply, can be obtained.

EXPLORATORY COMPLETIONS

CALIFORNIA WILDCATS

Kern County—Failures: Richfield Oil Corp's St. Clair Corehole 1, 24-28s-20e, S. Belridge area, abnd 10-16-46 at 1146.

Union Oil Co.'s Di Giorgio 62-3, 3-31s-29e, S. Mountain area, abnd 10-22-46 at 4684.

Solano County—Failure: Peter Cook, Jr.'s, Upper Unit 2, 15-5n-3e, Rykers Island area, abnd 10-22-46 at 3729.

Los Angeles County—Failure: Richfield Oil Corp.'s Simon 1, 15-2s-12w, E. Los Angeles area, abnd 10-22-46 at 8024.

San Mateo County—Failure: Fred G. Wilker-Albert Moynier's Walker, Moynier, Caughey 1, 20-7s-5w, San Gregonio area, abnd 10-23-46 at 3338.

Kern County—Distillate Discovery: Texas Co.'s West Pet. 1, 29-30s-22e, McKittrick area, elev 1327, flow 8 million wet gas, shut in, td 5173.

ILLINOIS WILDCATS

Bond County—Failure: Roberts & Hoiles' Hoiles 1, sw sw sw 13-4n-3w, abnd 1126.

Clinton County—Failures: T. M. Conray's McAdams 1, se ne ne 19-3n-1w, abnd 1411.

J. B. Frindley et al's Ries 1, ne ne ne 33-3n-1w, abnd 1424.

Coles County — Failures: Crabapple Creek Oil Co.'s Bareither 1, ne ne sw 32-13n-7e, abnd 2126.

E. A. Obering et al's Biemer 1, se ne nw 26-14n-7e, abnd 2888.

Magnolia's Saxe 1, ne se nw 15-2s-10e, abnd 3294.

Effingham County—Failure: Leland Waggoner's Probst 1, nw se nw 20-7n-6e, abnd 2620.

Gallatin County — Failure: B. M. Heath's Stinson 1, nw sw ne 9-9s-9e, abnd 2014.

Jasper County—Failure: Russell P. Johnson's Moschenroos 1, sw ne sw 28-7n-10e, abnd 2883.

Madison County—Failure: Madison County O&G Co.'s Heine 1, ne sw se 21-6n-9w, abnd 1285.

Marion County—Failure: Joe Slivka et al's Ward 1, sw sw se 25-1n-2e, abnd 2448.

Morgan County—Failure: E. G. Brown's Bellatti 1, se ne ne 16-15n-8w, abnd 1590.

Richland County — Failure: Hagemen & Ponds' Wiseman 1, se nw se 27-3n-11w, abnd 1933.

St. Clair County — Failure: B. W. Quick's Smith 1, sw sw se 31-3s-6w, abnd 465.

Shelby County—Failure: Continental's Ludwig 1, se se se 35-10n-6e, abnd 2424.

Wayne County—Oil Discovery: Nash Redwine's Springs 1, se ne ne 22-1s-7e, pump 20 bbls fr O'Hara, 3192-202, td 3320.

White County—Oil Discoveries: Inland Producers' Rister 1, se ne ne 15-4s-10e, pump 18 bbls fr McCloskey, 3123-33, td 3164.

C. E. Brehm's Callicott 1, se se nw 10-6s-10e, flow 248 bbls fr Aux Vases, 2950-60, td 2960.

White County—Failures: W. G. Fortner's Pyle 1, nw se sw 13-5s-8e, abnd 3324.

H. E. Ledbetter's Jourdan 1, sw se se 15-5s-8e, abnd 3475.

INDIANA WILDCATS

Floyd County — Failure: John W. Griest's Hile 1, 21-3s-6e, abnd 188.

Vanderburg County — Failure: George & Wrather's Mahler 1, sw sw se 6-5s-11w, abnd 2756.

KANSAS WILDCATS

Edwards County—Failure: Cities Service's Blattler 1, sw sw sw 13-25s-16w, abnd 4717.

Ellis County—Failure: Westgate-Greenland's Lundy 1, se se se 16-11s-16w, abnd 3455.

Harper County — Failure: Amerada's Peacock 1, nw sw ne 32-33s-8w, abnd 5149.

Marion County — Failures: D. T. Ingling's Jost 1, sw sw sw 22-19s-2e, abnd 3032.

G. M. Smith et al's Smith 1, se ne se 19-20s-5e, abnd 2637.

H. J. Uhl's College 1, ne sw ne 31-21s-2e, abnd 2875.

Ward McGinnis et al's Dwells 1, nw nw se 12-21s-5e, abnd 2430.

Reno County — Failure: Drillers Gas Co.'s O'Hara 1, c ne sw 30-24s-7w, abnd 2117.

Rice County—Oil Discovery: Phil-Han Oil Co.'s Chase 1, nw ne nw 28-18s-9w, pump 100 bbls fr Arbuckle, 3250-55, td 3255.

Rush County—Failures: Darby & Bothwel et al's Sankey 1, sw sw sw 18-17s-18w, abnd 4015.

Magnolia's Christianson 1, se se sw 28-19s-16w, abnd 3848.

Woodson County—Failure: Phillips' Waters 1, sw nw se 33-24s-14w, abnd 4434.

NORTH LOUISIANA WILDCATS

Morehouse Parish—Failure: Atlas O&R Co.'s Mott 1, c sw se 30-19n-7e, Gas Rock 2455, Travis Peak 2458, Cotton Valley 3155, abnd 10-15-46 at 4707.

Richland Parish—Failure: Hunt Oil Co.'s Wooten 1, c ne nw ne 36-15n-5e, Midway 2175, Gas Rock 2690, Rokio 3040, first Anhydrite 5003, abnd 5142.

Tensas Parish—Failure: Joe W. Brown's B. W. Butler 1, 660 n 1279 w of sect 32-10n-10e, 1½ mi n of Lake St. John prod, Cook Mt. 1826, Cane River 2856, Wilcox 3388, Tuscaloosa pinched out, abnd 10-12-46 at 9212.

SOUTH LOUISIANA WILDCATS

Acadia Parish — Failure: Harry Fotiades-Bateman Drlg. Co.'s Willis & Lantz 1, 660n & e of swc 14-8s-2w, 1½ mi s loat disc well, abnd 10-14-46 at 10,005.

Plaquemines Parish—Alliance Distillate Discovery: Calif. Co.'s E. P. Brady Unit 14-4, 19-16s-24e, 3 mi se Bayou le Fleur disc well, perf 120 shots 9072-82, flow 60 bbls 49.7-gr oil, 3,650,000 gas, ¼-in, tp 3100 lbs, comp 10-14-46 at 14,187.

MICHIGAN WILDCATS

Allegan County—Failure: J. E. Hood's Palm 1, sw se sw 23-1n-16w, comp 10-23-46 at 1194.

Livingston County—Howell Gas Discovery: Panhandle Eastern Pipeline Co.'s McPherson 1, nw sw se 35-3n-4e, Salina 3838, gas 3897-3907, flow 7,000,000 gas, comp 10-22-46 at 3907.

Saginaw County—Failure: J. O. Mutch's Narring 1, nw ne se 5-10n-5e, comp 10-23-46 at 1826.

Van Buren County—Failure: S. L. Godfrey's Thomas 1, sw ne nw 7-1s-15w, comp 10-24-46 at 1440.

Wexford County—Failure: Gulf's Jacobs 1, ne ne se 11-21n-9w, Dundee 3894, Monroe 4008, comp 10-26-46 at 4018.

MISSISSIPPI WILDCAT

Issaquena County—Failure: Burns & Miller's Mohanna 1, ne nw 11-18n-3e, Wilcox 2675, Gas rock 5040, Eutaw 5180, Massive sd 6531, abnd 10-18-46 at 7012.

MONTANA WILDCAT

Big Horn County—Failure: H. L. Hunt's Kendrick 1, c se se 24-1n-34e, Nine Mile, Frontier 3170, Ellis 5284, Chugwater 5705, Tensleep 6085, El. 3165, abnd 10-21-46 at 6092.

NEW MEXICO WILDCAT

Curry County—Failure: Humble's Northcutt 1, c se sw 32-8n-37e, elev 4477, Anhydrite 1610, salt 1840, granite wash 6648, abnd in limey-shale 10-21-46 at 7520.

OHIO WILDCATS

Holmes County—Failure: Pure's A. Struthers 1, se se 6, Richland Township, abnd 10-22-46 at 3369.

Lorain County—Failure: Ohio Fuel Gas Co.'s C. H. Feirtag 1, lot 72, Eaton Township, abnd 10-21-46 at 2562.

OKLAHOMA WILDCATS

Caddo County—Failure: Nail-Reed Oil Co.'s Coyle 1, sw sw sw 27-5n-12w, abnd 1350.

Carter County—Failure: Jones Oil Co.'s Ford 1, c se nw 13-4s-3w, abnd 6116.

Cotton County — Oil Discovery: L. H. Choate's Shelby 1, nw nw se 5-4s-10w, pump 65 bbls fr Pennsylvanian sand, 1356-59, td 1359.

Cotton County—Failures: George Hassell et al's Scherler 1, nw sw nw 26-2s-13w, abnd 1578.

C. B. Richardson's Jones 1, sw sw ne 9-3s-10w, abnd 2514.

L. B. Goza's Graham 1-A, ne sw sw 32-3s-10w, abnd 1403.

C. Andrade, III's Tollitt 1, se se ne 7-3s-11w, abnd 2001.

Neal Hood Oil Co.'s Bone 1, ne se se 9-4s-10w, abnd 1758.

Cochran & Cain's Worsham 1, nw ne se 15-4s-10w, abnd 1665.

Morgan Brown's Shelton 1, sw sw ne 30-4s-10w, abnd 1804.

Cotton County—Oil Discovery: S. D. Johnson's Simon 1, ne se nw 9-3s-11w, pump 35 bbls fr Pennsylvanian sand, 1595-1605, td 1605.

Lincoln County—Failures: G. R. Haves' Boland 1, nw nw sw 25-12n-3e, abnd 5500.

Harper & Turner's Holt 1, ne nw se 4-13n-4e, abnd 3186.

Noble County — Failures: Cities Service et al's Wilde 1, sw se se 26-24n-1e, abnd 4692.

Pawnee County—Failure: Glen Gillespie et al's Bergdoll 1, se se nw 23-21n-6e, abnd 3252.

Seminole County — Failure: Culham Pet. Co.'s Whitney 1, sw sw se 32-10n-9e, abnd.

Washita County—Failure: P. W. Gray et al's McCurdy 1, nw se se 7-6n-17w, abnd 1957.

OKLAHOMA WILDCATS

Comanche County—Failure: English & Franklin's Neahkah 1, ne nw sw 27-3n-10w, abnd 2562.

Cotton County — Failures: W. A. Delaney's Hopper 1, ne ne ne 5-2s-11w, abnd 2510.

Barbre & Griffen's Sch-gel-zel 1, nw sw nw 19-2s-11w, abnd 2292.

Roy L. Fisher's Wallace 1, sw sw sw 3-2s-12w, abnd 2105.

Whatley & Barbre's Bates 1, sw sw ne 36-2s-12w, abnd 2006.

C. H. Featherston's Waller 1, se se ne 23-4s-10w, abnd 1826.

L. H. Choate's Landrum 1, sw sw ne 16-4s-12w, abnd 2545

Garfield County—Failure: Cities Service et

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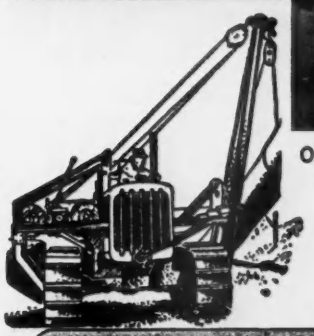

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al's Schultz 1, se se nw 7-24n-8w, abnd 6915.

Garvin County—Failure: R. H. Dearing & Son's Hawkins 1, ne ne sw 20-4n-3w, abnd 9218.

Hughes County—Failures: Deep Rock Oil Corp.'s Warren 1, nw se sw 9-6n-11e, abnd 4957.

Mid-Continent's Brown 1, nw nw se 25-8n-8e, abnd 3368.

Jefferson County—Failure: Snoddy Brothers' Bull 1, nw nw se 20-3s-9w, abnd 2514.

McClain County—Failure: Mid-Continent's Kirkland 1, sw se nw 26-5n-2w, abnd 7286.

Okfuskee County—Failure: Hall, Miller & Rodgers' Morris 1, se nw nw 29-10n-9e, abnd 3893.

Oklahoma County—Failure: Stanolind et al's Macklin 1, se se nw 1-13n-1w, abnd 5930.

Seminole County—Oil Discovery: Manahan Oil Co.'s Harris 1, ne se sw 21-8n-7e, flow 94 bbls fr Gilcrease sand, 3287-89, td 3303.

Seminole County—Failure: Culham Pet. Co.'s Whitney 1, sw sw se 32-10n-8e, abnd 4435.

Stephens County—Failure: C. W. Smith et al's Dodson 1, se se se 25-2s-8w, abnd 2510.

WEST TEXAS WILDCATS

Dawson County—Failure: Ray A. Albaugh et al's Scanlan-Stanolind 1, c sw sw E. L. & RR. Co. 85, blk M, elev 3131, San Andres 4600, abnd 10-22-46 at 5000.

Ector County—Failure: Cities Service's Parker-Wentz 1, c se ne T&P Ry. 20, blk 44, T-2-S, elev 3117, Anhydrite 1370, Yates frosted grains 2650, San Andres 4405, Glorietta 5160, Clear Fork 5360, Wichita-Albany 6380, base Permian 8315, detrital 8315, Pennsylvanian (Canyon) 8370, Woodford shale 10,130, Devonian 10,320, Silurian 11,145, Fusselman 11,415, Montoya 11,490, Simpson 11,695, Ellenburger 12,450, abnd 10-22-46 at 12,529.

WEST TEXAS OUTPOST

Andrews County—Block 12 Field Failure: Seaboard's University 1-B, c ne ne sect 19, blk 12, 2-1/16 mi sw of prod, elev 3281, Anhydrite 1500, Yates 2890, San Andres 4395, abnd 10-16-46 at 4488.

WEST CENTRAL TEXAS WILDCATS

Callahan County—Failure: H. F. Pettigrew et al's Philley 1, 330 snl 960 wel sect 17, Blind Asylum Lands, abnd 10-18-46 at 1937.

Jones County—Failure: George Waite et al's Burgeson 1, 1252 ewl 330 snl of s ½ HT&B Ry. 26, elev 1562, Dothan 1331-34, Flippen sd 1712-15, L. Hope 1871, abnd 10-19-46 at 1995.

Taylor County—Failure: S. B. Roberts-A. C. Scott's Ray 1, 330 out swc sect 5, E. L. & RR Co. sur, elev 2124, abnd 10-18-46 at 3506.

WEST CENTRAL TEXAS NEW PAY TEST

Brown County—Deep Oil Discovery in Shallow Gas Pool: Chas. J. Kleiner-Lee Heltzel's O. B. Fomby 1, 3594 snl 600 wel Wm. B. Smith sur 155, offset shallow gas, elev 1512, sand 1714, Bend 1934, Marble Falls 2691, Ellenburger 3132, pump 38 bbls 40-gr oil, 140 bbls wtr, 6500 gals acid Ellenburger open hole 3136-51, comp 10-12-46.

NORTH TEXAS WILDCATS

Archer County—Failure: A. R. Dillard et al's Coats 1, 1050 nsl, 150 wel of 76.8-ac tr, Jose Ostane sur, abnd 10-20-46 at 1500.

Baylor County—Failure: F. R. Gillespie et al's Motula 1, ne ne sw T&NO Ry. 221, elev 1333, abnd 10-18-46 at 2602.

Clay County — Failures: W. A. Baber et al's Baber & Barbour 1, 150 n of river 2500 snl 150 ewl blk 15, Bacon sbdn, abnd 10-20-46 at 1357.

Bell O&G Co.'s Dowlin-Schnabel 1, 1930 ewl 2800 nsl of BBB&C Ry. 1, elev 915, Canyon 2861-2901, abnd 10-16-46 at 2957.

Cooke County—Failure: Geo. W. Graham et al's Fenley 1, 2300 snl 330 ewl of tr, or 330 ewl 6850 nsl M. Langham sur, Ellenburger 2025, abnd 9-30-46 at 2086.

Denton County—Failure: McCurdy Bros. et al's Kimbrough 1, 450 s 150 e of sec of Robt. Howard sur, but in BBB&C sur, abnd 10-21-46 at 2055.

Montague County — Failure: Honolulu Oil Corp.'s Cooke 1, 1975 snl 1600 ewl J. W. Carter sur, elev 1016, Home Creek 1300, Davenport 2117, abnd 10-22-46 at 4368.

Wichita County—Failure: C. N. Percifield et al's Ecklecamp 1, 150 snl 450 wel blk 245, Waggoner Colony Lands, abnd 10-10-46 at 2105.

Young County—Failure: L. D. Terry et al's Shatto 1, 150 snl 1460 wel of s½ TE&L Co. 1916, abnd 9-21-46 at 675.

EAST TEXAS BORDER COUNTIES WILDCATS

Cass County — Failure: Atlas O&R Co.'s Laura Thomas 1, 1120 s of nl 600 w of el W. G. Anderson sur, 660 fr n&el 71.47-ac lse, abnd 10-21-46 at 5507.

Panola County—Failure: Gulf's S. B. Wallace "A" lse. 1, 750 n of sl 3100 w of el A. M. McLaughlin sur, 5 mi ne Deadwood, Saratoga 1443-74, Annona 1652-84, L. Taylor 1947-76, Blossom 2131-62, Austin 2377-2408, Comanche 2563-94, Goodland 2813-43, Paluxy 2940-70, Glenrose 3250-81, Anhydrite stringer 4116-50, Anhydrite 4488-4518, Massive 4790-4800, base Massive 5050, no Hill, L. Anhydrite stringer 5119, James lt 5595, Pettit 5925, transitional zone 6295, Travis Peak 6427, abnd 10-22-46 at 6749.

SOUTH CENTRAL TEXAS WILDCAT

Bexar County—Failure: W. D. King's Joe H. Tondre 1, 660 fr wl 1554 fr sl 188.9-ac lse, W. M. Bumstead sur 25½, abnd 10-15-46 at 676.

SOUTHWEST TEXAS WILDCATS

McMullen County — Failure: Jess McNeel's Fee 2, 2050 fr nl 1385 fr el CCSD&RGNG sur 231, Carrizo 2602, abnd 10-10-46 at 3202.

Webb County—Failure: O. W. Killam's J. G. Garcia Hrs. 1, 342 fr sl 186 fr el blk 9, sur 2363 on 160-ac lse, 2 mi e Mirando City fld, abnd 10-8-46 at 2075.

SOUTHWEST TEXAS OUTPOSTS

Starr County — Sun Extension: Humble's Sabas Garza Pena et al 1, 467 fr sl 1251 fr wl 100-ac tr out of 283-36-ac lse, 1251 fr wl 1620 fr nl CCSD&RGNG sur 241, ½ mi n of se flk oil prod, pay 4626, perf 60 shots 4632-42, flow 109 bbls 46-gr 9/64-in, gor 470/1, comp 10-12-46 at 5258.

Webb County—Aviator Failure: Dulaney Oil Co.'s State of Texas 4, 990 fr sel 520 fr swl sur 838 and 69.5-ac lse, 934 se of State 4 gas well, 1 mi sw prod, abnd 10-15-46 at 1677.

LOWER TEXAS COAST WILDCAT

Goliad County — Failure: Sun's Victor Albrecht 1, 660 fr se&swl 700-ac lse, 1375 fr sl 1975 fr el Franklin Wright sur, 2 mi se S. Cabeza Crk fld, abnd 10-14-46 at 9005.

LOWER TEXAS COAST OUTPOST

Bee County—Burnell-Wilcox Failure: Magnolia's Moore-Turner 1, 1320 fr nwl 2800 fr nely/nel 544-ac lse, 1900 fr sely/sel 2800 fr neyl/nel Geo. Pagan sur, 2875 s se Navarro's Forest Dahl sw exten gas well, Luling 6863, abnd 10-15-46 at 7204.

LOWER TEXAS COAST NEW PAY TESTS

Bee County—Strauch-Wilcox Distillate Discovery: Mills Bennett's C. G. Rico 1, 330 fr nwl 2500 fr nel 630 fr sel 132.88-ac lse, J. M. Uranga Gr, 4500 sw Berger 1 disc in Luling sd, Luling 8201, Slick pay 8000, perf 90 shots 8000-15, flow 11 mln gas open, spray dist, comp 10-10-46 at 8275.

Brooks County—Dan Sullivan Distillate Discovery: Sun's D. J. Sullivan 6, 8300 e of wl El Tule Gr 660 n of Olmos Crk, 15.753-ac lse, perf 107 shots 10,275-93½ and 48 shots 10,155-180, flow 102.2 bbls cond, 7,560,000 gas, ¼-in, tp 4500 lbs, comp 9-15-46 at 13,206.

Nueces County—E. White Point Oil Discovery: W. R. R. Oil Co.'s State-Nueces Bay (973) 5, (OWWO), 330 fr swl 161.6-ac lse, State Tr 973, dual comp: Myers sd 5650, perf 5650-60, flow 78.24 bbls 40.3-gr, 9/64-in, gor 420/1; new pay 5808, perf 24 shots 5811-19, flow 119.15 bbls 42.9-gr, ⅛-in, gor 442/1, comp 9-19-46 at 5863.

Refugio County—Refugio-Heard Oil Discovery: Commercial Prod. Co.'s Shelly Ryals et al 5, 298 fr nl&nlyl/sl 330 fr ely/el 40.77-ac lse, dual comp: new pay 5400, perf 25 shots 5400-08, flow 121.92 bbls 38-gr, ¼-in, gor 500/1; pay 6153, perf 13 shots 6214-16, flow 54.04 bbls 39-gr, 5/64-in, gor 650/1, comp 10-6-46 at 7008.

UPPER TEXAS COAST WILDCATS

Chambers County—Failure: Edwin B. Cox-Jake L. Hamon's Mayes White 1, 660 fr sl 343 fr wl 40-ac lse, Garner Long sur, 2500 e of S. Mayes disc well, abnd 10-15-46 at 9181.

Harris County—Failure: Stanolind's L. H. Caesar 1, 466 fr s&el 40-ac lse, 600 e 466 n of nwc T. Hubanks sur, 1 mi se Fairbanks nearest prod, jkd and abnd 9-27-46 at 8265.

Liberty County—Failure: L. D. Cartwright's B. E. Quinn 1-A, 333.3 fr n&el s 250-ac of 500-ac tr, A. B. Rozelle sur, 3½ mi n nw McCoy disc, abnd 10-18-46 at 1892.

Newton County—Failure: Humble's E. P. Hughes et al 1, 572 fr nl 454 fr wl 417 fr el Hughes et al 18.05-ac tr on 40-ac unit, W. H. Stark sur, Bon Wier area, abnd 10-20-46 at 9482.

Waller County—Failures: San Haden Harper's I. H. Stahlman 1, 385 fr sl 660 fr n&el 40-ac lse, J. A. Padillo sur, Cockfield 5042, abnd 10-15-46 at 5454.

UPPER TEXAS COAST NEW PAY TEST

Liberty County—Hull E. Flank Oil Discovery: American Republics Corp.'s Dolbear 175, 1280 fr el 2610 fr nl 800-ac tr and J. Devore Lge, Middle Yegua pay 4862-4900, perf 24 shots 4876-80½, flow 128.36 bbls 44.3-gr, ⅛-in, gor 819/1, tp 750 lbs, cp 1175 lbs, comp 10-5-46 at 5700.

UTAH WILDCAT

Uinta County—Failure: B. V. Bullock's Angus 1, c sw ne 36-1s-1e, Vernal area, abnd 10-18-46 at 2107.

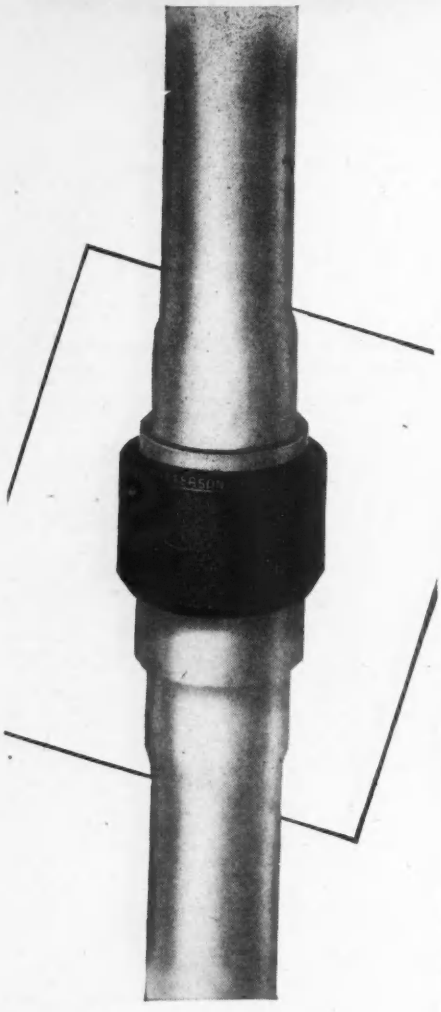
WYOMING WILDCAT

Big Horn County — Failure: Kerr-McGee-Phillips' Gov't. 1, nw nw ne 2-50n-92w, Dry Dome, Phosphoria 3440, Tensleep 3663, Madison 4022, abnd 10-18-46 at 4173.

Severance Receipts Down

Severance tax receipts for September in Mississippi totalled $175,993.04 on the sale of 2,106,935 barrels of oil from 713 producing wells.

"Best Bet Yet"



Cut Metal-to-Metal Contact

These oil-proof, insulating, wear-resistant, plastic tubing protectors are an integral part of the tubing collar. Made in all sizes, they prevent the metal-to-metal contact that causes many expensive "wet" jobs in pumping wells. Without this contact, the collars do not wear holes in the casing.

See Composite Catalog

Patterson-Ballagh TUBING PROTECTOR

LOS ANGELES HOUSTON 10 NEW YORK 5

SQUEAKS from the BULL WHEEL

Bad Habit

"Where ya goin', Eb?"
"Town."
"What fer?"
"To git my wheelbarrow fixed."
"Who broke it?"
"Hired man."
"Same one you chased with a shotgun till he married your daughter?"
"Yep."
"Clumsy, ain't he?"

The Woman's Way

"What happened to your car?"
"I had to run into a fence to avoid hitting a cow."
"Jersey cow?"
"I dunno. I didn't see its license plate."

Biggest Chore Ahead

With her hand on the light switch, the little woman interrupted her chatter to inquire: "Is everything shut up for the night, dear?"
"Yes, sweetheart. Everything else."

Poet's Nook

I used to think when I was young,
That girls were sweet as pie.
But when I think of what I thunk,
I think I thunk a lie.

Safety Hint

Fellows who drive with one hand are usually headed for a church aisle. Some will walk down it and others will be carried in a box. Either way, it's better to use both hands.

Doesn't Help, Anyway

"Will this suit hold its shape?"
"It's 100 percent virgin wool."
"I'm not interested in the morals of the sheep—I asked you if this suit will hold its shape!"

Just Like That

"I tried my ju-jitsu on a burglar last night."
"What happened?"
"Well, I got hold of his leg and twisted it over his shoulder. Then I got hold of his arm and twisted it around his neck, and before he knew what was happening, I found myself flat on my back."

Women Are Hard to Please

"I hear you divorced your bride."
"Yeah, it all started when I bought her a skunk coat for her birthday."
"Then what?"
"Why, the ungrateful little wretch said: 'I can't see how such a beautiful coat could come from such a foul-smelling beast.'"

Imagination, Too

"I hate these long dresses women are wearing."
"Doesn't bother me. I have a good memory."

The Modern Way

"Johnny, why are you standing there fidgeting with your hand in the air? Do you want to leave the room?"
"You don't think I'm standin' here hitch-hikin', do you?"

Ticklish

"Why did you give that comedian the brushoff?"
"Because every time I went out with him he tried to get funny."

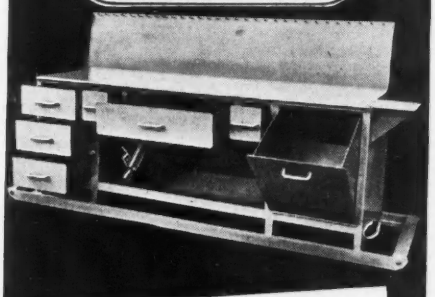
Life Is Like This

If fortune smiles—who doesn't?
If fortune doesn't—who does?

Love Thy Enemies

"I just adore nature," gushed the hatchet-faced spinster.
"That's loyalty for you," grunted a bystander. "After what nature did to her!"

OWEN



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Owen Type "A" Work Benches are all-steel, all-welded and mounted on rigid steel skids. Drawers are roller-mounted, with forward stops and a central locking mechanism. Guards prevent water and oil from draining in on tools. Sturdy stand provides convenient space for mounting vise. Six drawers for hand tools and instruments, a big bin for rags and steel pegs on the back apron for wrenches provide plenty of storage space.

They're the finest in the field for saving tools and providing a safe, convenient working space. Put one on each rig you operate . . . they'll "dress up" its efficiency and appearance.

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Thomas C. Brownfield, New York City, has been named assistant to the president of The Carter Oil Company, effective November 1, and will move to Tulsa. Brownfield lived in New York City several years while acting as a liaison officer between the Carter management and the coordinator for petroleum of Standard Oil Company of New Jersey. Literally "growing up" in the oil fields, Brownfield worked with his father in the Cushing fields, became a scout, later a statistician and served as chief scout, chief statistician and liaison officer.

Thomas C. Brownfield

»

James Courtney, West Texas district superintendent for H. W. Snowden Oil & Gas Company, Ltd., has established headquarters in the Dunagan Building, Midland.

»

Glenn E. Crays, geologist for Texas Pacific Coal & Oil Company in West Texas, and formerly with Gulf Oil Corporation, has joined Creole Petroleum Company, a subsidiary of Standard Oil Company of New Jersey, and will report for duty shortly at Caracas, Venezuela.

»

Vincent W. Finch has been made senior geologist for Shell Oil Company at Ventura, Calif., filling the vacancy caused by the transfer of **Alexander Clark** to Casper, Wyo. Clark has been made senior geologist for the Mountain area.

»

Oscar Hudson, geologist with Phillips Petroleum Company, has been transferred from the company's Indiana division to Corpus Christi, Texas, where he will head Phillips' geological department for the area. He replaces **R. E. McPhail,** who has been transferred to Phillips' home office at Bartlesville, Okla.

»

E. V. Watts, General Petroleum Corporation, has been appointed general chairman for the 1947 spring meeting of the Pacific Coast District Division of Production, American Petroleum Institute. The appointment was announced by **M. W. Morris,** Standard Oil Company of California, chairman of the Pacific Coast District. The meeting will take place May 15 and 16 at the Biltmore Hotel, Los Angeles.

E. V. Watts

Henry Carter Rea, chief geologist for Bay Petroleum Corporation, has resigned to open consulting offices in Casper, Wyo., offering a specialized service in photogeology.

»

L. H. Wright and **Dr. C. C. Crawford** have been named assistant managers of the chemical products department by Phillips Petroleum Company. Wright will be in charge of the Philgas wholesale, industrial and retail divisions, and Crawford in charge of the special products, product development and Perco divisions. **Dr. A. J. Dirksen** has been promoted to manager of the products development division to replace Crawford.

»

H. N. Pardee has retired as district manager of The Texas Company's Oklahoma-Kansas-Illinois Division producing department at Tulsa and has been succeeded by **M. J. Heald,** formerly Pardee's assistant.

»

Dr. Katharine W. Carman has resigned as Illinois district geologist for Great Lakes Carbon Corporation, Chicago.

»

T. P. Steeper, an official of Cities Service Oil Company, has been elected president of Cities Service Oil Producing Company, a Delaware corporation capitalized at $5 million that has been given permit to operate in Texas. **C. E. Murray** is secretary of the firm, which maintains headquarters at Bartlesville, Okla.

»

J. J. Jenkins, Tom Potter, Tom F. Head and **Wayne A. Shank,** all of Kilgore, Texas, have incorporated the Kilgore Petroleum Corporation with headquarters at Kilgore.

»

J. W. Sorrells, who has been active in drilling wildcats in Texas for a number of years, has organized the Sorrells Oil Company, with headquarters in the Danciger Building, Fort Worth.

»

Fred W. Bates, consulting geologist, Lafayette, La., discussed the "Geology of West Tepetate Oil Field" before the Houston Geological Society October 28.

»

Lawrence K. Marshall was elected president of the Cooney Mining Club student chapter of AIME at the New Mexico School of Mines. Other officers are **Arthur S. Lees,** vice president; **H. F. Mullen,** secretary-treasurer. Professor **Jack I. Laudermilk,** head of the department of petroleum engineering, is faculty sponsor.

»

Jack Davies, Halliburton Oil Well Cementing Company, gave a talk on the "Canol Project" before the Shawnee Geological Society October 10 at Shawnee, Okla. **Dr. Paul H. Price,** state geologist of West Virginia, spoke on "Evolution of Geologic Thought in Prospecting for Oil and Natural Gas," at the Society's October 24 meeting.

R. G. Greene, Union Oil Company, Los Angeles, has been appointed manager of lands and leases. He replaces **John L. Church,** who has been appointed assistant to vice president **A. C. Rubel,** on special assignment. Greene started with the company as a geologist in 1925, his first assignment being to Venezuela where he remained until 1929, when he returned to California. Seven years later he left the company to head the geological department of Union Pacific Railroad. He returned to Union Oil Company in November, 1945, when he engaged in organizing and establishing the company's Northwest Land Division in Seattle, Wash.

R. G. Greene

»

Carl T. Anderson, geologist associated with **George W. Cooper,** North Texas producer, has resigned to become Oklahoma division geologist for Republic Natural Gas Company, Dallas, with headquarters at Oklahoma City.

»

J. S. Smith, Wilmer S. Pettit, M. Pois and **R. M. Schulz,** all of Wichita Falls, have incorporated the Arrow Drilling Company, with capital stock of 1000 shares at $100 par value.

»

A. A. Moore, J. R. Gibson and **Oscar Spitz,** all of Corpus Christi, Texas, have organized the Complete Oil Well Service Company.

»

H. H. Willke and **H. A. Willke,** both of Houston, have incorporated the Marnet Mineral Company, Inc., with headquarters at Houston.

»

W. A. Heath has resigned from Phillips Petroleum Company to join Earlougher Engineering Company, petroleum consultants specializing in water flooding and pressure maintenance by water injection. Heath obtained his early experience in secondary recovery in Pennsylvania. In 1936 he went with Phillips at Bartlesville, Okla. He was made assistant division superintendent in 1938 and since 1940 has been the secondary recovery engineer in the Bartlesville office. He is chairman of the Oklahoma Section of the American Petroleum Institute, Mid-Continent District, Secondary Recovery Sub-committee, and a member of the Independent Petroleum Association of American Secondary Recovery Committee.

W. A. Heath

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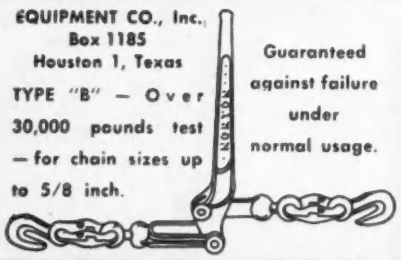

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MEN IN THE INDUSTRY NEWS

C. U. Daniels, Tulsa, has resigned as a director and officer of the Oklahoma Natural Gas Company to accept a post with another company. As a result of this resignation, **H. H. Ross,** who was manager of operations, and **Paul Sticelber,** manager of land and geology, have been made vice presidents. Daniels was vice president in charge of operations.

»

G. V. Leece, vice president of Gardner-Denver Company, has been appointed general sales manager. Leece joined the company in 1922, and has been progressively Pacific Coast manager, district manager of the New York branch and vice president in charge of the export division. He is also a director. His headquarters will be in the Quincy, Ill., plant.

»

Otto D. Donnell, president and general manager; **Harcey C. Warters,** district superintendent, Robinson, Ill.; and **Daniel F. O'Neil,** head of the cashier's department, Findlay, Ohio, recently were awarded 40-year service emblems by The Ohio Oil Company.

»

George Biggs, manager of sales promotion and training for Continental Oil Company, has resigned to engage in business for himself in Ponca City, Okla. He had been employed by Continental since 1937.

»

Keith Clevenger, Tulsa, has joined the Southern Gas & Equipment Company as manager of sales promotion and advertising. He had been associated with the *Natural Gases* magazine.

V. L. Thomas has been appointed secretary and treasurer and a member of the board of directors of the American Iron and Machine Works Company, it was announced by **J. A. Gray,** president. Thomas joined the firm in 1937 and has been successively office manager, controller, and assistant secretary.

V. L. Thomas

»

M. A. Clement has succeeded **R. E. Mayo** as service manager for the Western Division of Caterpillar Tractor Company, at San Leandro, Calif. Mayo has taken charge of the San Leandro field research office. Clements has been with the company since 1936, and has been manager of the Central Division since 1944. **J. D. Uhll** will replace him in the latter position, being succeeded by **E. M. Iverson** as service engineer.

»

W. A. (Red) Davis, formerly sales manager for LeBus Rotary Tool Works, has resigned to form his own company, which will handle the sales and distribution of oil field specialties. He will continue to represent LeBus Rotary Tool Works as agent for the oil field division.

»

D. C. Richardson, Jr., has opened an office at Abilene, Texas, from which he is operating as an independent producer.

Deaths

Ellsworth S. (Cap) Nowery died in Beaumont October 29. He had been ill since a heart attack several weeks ago. Nowery was drilling and production superintendent for Sun Oil Company's Beaumont division until his retirement in 1944. He had been with Sun since 1907. He was a native of West Virginia, where he entered the oil business as a tool dresser in 1894.

»

R. O. Harvey, 65, Wichita Falls oil man and civic leader who discovered the Desdemona field, Texas, died October 29 after a long illness.

»

C. E. Bowen, 64, independent oil man, died of a heart attack in Temple, Okla., October 22. He had been active as a lease buyer for several major companies.

»

Ras Pool, 73, died in Shreveport, October 25. He was a native of Rusk County, Texas, and had extensive holdings in the East Texas oil field.

Ernest L. Kistler, 71, former pioneer Oklahoma oil operator and attorney, died in San Antonio, October 28 following an illness of two years. A native of Greensboro, N. C., Kistler moved to Oklahoma in 1898, following his graduation from law school in Lebanon, Ohio. He became engaged in the oil business as a producer in the Boynton field near Muskogee, Okla., and later in the Okmulgee and Henryetta districts. Until his retirement about five years ago, he was general manager of the Grayburg Oil Company, San Antonio.

»

John D. Clay, 67, independent oil operator, died at Houston of pneumonia October 24. He was a native Texan, and began oil operations in the Humble fields 32 years ago.

»

Stanley Marsh, 63, member of the firm of Hagy-Harrington & Marsh, developers of extensive gas and oil holdings in the Texas Panhandle, died October 28 at Amarillo, where he had resided since 1925.

LeRoi Expands Birmingham Office

LeRoi Company, Milwaukee, has expanded its Birmingham territorial sales office to full factory branch facilities. A brick and glass block building, housing offices, a display floor, service repair shop and parts department, has been completed. Location is 631 Ninth Street North. The Birmingham branch, under C. B. Hall, branch manager, is now headquarters for Florida, Georgia, Alabama, Louisiana, Mississippi, Tennessee, Kentucky, Virginia, West Virginia, Arkansas, the Carolinas, and the West Indies.

Six Officials Are Appointed By Oil Well Supply Company

Appointments in the sales department of Oil Well Supply Company, general headquarters of which are in Dallas, were announced by this U. S. Steel Corporation subsidiary.

Named assistant general managers of sales were F. D. Smith and M. F. Hazel. Named sales department managers were V. J. Waters, drilling equipment; J. S. Fuller, production equipment; C. A. Bell, used equipment; and M. D. Routzon, merchandise claims.

Each of the six officials named have been located in "Oilwell's" general offices and will continue to headquarter there.

Acting General Sales Manager Is Named by Cummins Company

Leonard W. Beck has been appointed acting general sales manager of Cummins Engine Company for overall administration of the distribution division of sales and service. He will also continue as manager of the company's central region, with offices at the Columbus, Ohio, factory. He was appointed to this position in 1939.

Leonard W. Beck

Byron A. Duling, former manager of the Cleveland region, will work directly under Beck. Corwin B. Briscoe, who went to Cummins from the Navy, was appointed acting parts merchandising manager at Columbus; Norman E. Palmer was made the Washington, D.C., representative; Fred W. Sparks manager of the Cleveland region. James D. Allen will continue as sales manager of dealer operations, and Kenneth M. Leech as service manager at Columbus.

Foreign Representative Named By Houston Oil Field Material

The Houston Oil Field Material Company, Inc., has appointed D. U. Skinner as foreign representative. He was formerly sales and public relations director for the manufacturing, cutting and fishing tools, and the directional drilling departments. His headquarters have been transferred from Houston to Caracas, Venezuela, where he will aid in sales work and act as consultant in cutting and fishing tool problem in Central and South America. The company's export representative is E. F. Gahan, 500 Fifth Avenue, New York 18.

The following changes in personnel were also announced: R. M. Freeman was made assistant district manager in West Texas. He was store manager at Eunice, N. M. Harry J. Bish, H. O. Price and Elbert L. Burns, Jr., have returned to HOMCO from the armed forces. Bish will work as cutting and fishing tool operator; Price and Burns are warehousemen, all located in Houston. Eugene E. Campbell has been employed as warehouseman at the Harvey, La., store; W. M. Skinner in the same capacity at Raymondville, Texas. Patrick J. Dougherty has been promoted from warehouseman to field salesman at Natchez, Miss. Temple O. Davidson has joined HOMCO as maintenance man in the cutting and fishing tool department at Corpus Christi, Texas. P. M. Neal has returned after a two-year absence and is salesman in the Houston district.

Factory Tours Resumed

Restricted during war years, escorted plant tours through the Peoria, Ill., factory of Caterpillar Tractor Company have been reinstated.

Brown Expands Staff

The Brown Instrument Company, Philadelphia, has added 45 new sales and service engineers and will assign them to various regional offices and branches.

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BE SURE TO CHECK THE
TRADING POST SECTION
ON PAGE 66 OF THIS ISSUE

Oklahoma Revises Rules on Oil and Gas Production

The Oklahoma Corporation Commission has revised general rules covering oil and gas production.

Included in the new rules are establishment of uniform regulations with other states, and an order bringing the rules in line with House Bill 257, passed by the 1945 legislature.

The general order establishes a pressure base of 14.65 pounds per square inch, instead of 16.4 pounds, in reporting gas measurements to the commission; defines "waste" of oil and gas to conform to the House bill; requires the filing of electric logs and similar surveys on wells, when such logs are released for publication or public dissemination; permits production of 150 barrels of oil, or 500,000 cubic feet of gas per day on new oil and gas wells pending classification of the wells and fixing of allowables; provides for underground disposal of salt water in oil fields; prohibits the use of sweet natural gas in the manufacture of carbon black, except on special orders of the commission; and regulates plugging of core holes, "strat" tests and seismographic shot holes.

Wildcat in Arizona Reported To Have Saturated Pay Sand

A wildcat being drilled in the San Simon Valley of Arizona by M. D. K. Fitzwater is reported to have reached an oil-saturated sand at 1995 feet. Drilling operations are suspended while a new diesel rig is being installed, but a test of the sand is expected within 30 days.

The test is being drilled near the town of San Simon, Cochise County, in the extreme southeast corner of Arizona. San Simon is on U. S. Highway 86, about ten miles west of the New Mexico border and 130 miles southeast of Tucson. The wildcat is reported to be on a huge domal structure in a semi-arid valley surrounded by the Chiricuhua mountains.

Fitzwater is a former oil operator in Texas, Louisiana, and Arkansas who moved to San Simon three years ago for his health and bought a ranch.

THE OIL MAN'S CALENDAR

NOV.	
4	Mississippi-Alabama Mid-Continent Oil & Gas Association, Jackson, Miss.
7- 8	American Association of Petroleum Geologists, Pacific Section, Annual Fall Meeting, Los Angeles
11-14	American Petroleum Institute, Annual Meeting, Chicago, Stevens Hotel.
21-23	Rocky Mountain Oil and Gas Association, Annual Meeting, Denver, Shirley-Savoy Hotel.
22	Independent Natural Gas Association, Annual Meeting, Fort Worth, Blackstone Hotel.
DEC.	
4	New Mexico Oil & Gas Association, Annual Meeting, Artesia.
9-11	Interstate Oil Compact Commission, Quarterly Meet, Dallas. Adolphus Hotel.
16-18	Annual Advalorem Tax Forum, Mid-Continent Oil & Gas Association, San Antonio, Plaza Hotel.

Nomads Chapter monthly meetings: LOS ANGELES, second Wednesday, Mayfair Hotel. Houston, second Monday, Ye Olde College Inn. NEW YORK, first Monday, Louis Sherry's. TULSA, third Wednesday, Hotel Tulsa. DALLAS, date not yet fixed.

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